WORLD GEOGRAPHY

TARR AND McMURRY

PART TWO

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WORLD GEOGRAPHY

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WORLD GEOGRAPHY

PART TWO

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*WITH MANY COLORED MAPS AND NUMEROUS ILLUSTRATIONS
CHIEFLY PHOTOGRAPHS OF ACTUAL SCENES*

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PREFACE

How relationship to man has been secured

THE Tarr and McMurry Geographies, which have set a new standard in the teaching of the subject in America, have many original and suggestive features. One of the most important of these is the establishment of a closer relationship between man and the earth than has usually been attempted in geography texts. A large number of the topics, instead of being coldly presented, as so much fact to be learned, both have been *approached*, and also have received their *full treatment, from the viewpoint of man's interest in them.*

For example, for typical treatment of a continent turn to Asia (p. 315), and of a single country, to China (p. 326). Asia is declared to be the largest and most populous of all the continents, and also to have the oldest civilization. Besides, it lies next to Europe, the best known continent. Yet, possibly, except Africa, it is the least known of all the continents. Why it should be so little known becomes then a question of real interest; and the answer, as presented on page 319, involves consideration of its surface features, climate, and inhabitants. Likewise in the study of China (pp. 326–333), the former progress of its inhabitants first receives attention. This is contrasted with their present backwardness. Then, since the future progress of the Chinese is one of the live questions of the day, the area and population of the country, the variety of its climate, its surface features, resources, manufacturing, and facilities for transportation, are all considered with reference to this one problem. Finally, the recent advances of China are discussed and its principal cities located. Thus, as far as possible, each continent and each country has been approached from the point of view of the learner, and the questions raised at the beginning control the presentation that follows.

The danger of poor organization, and how avoided

Organization of subject matter, however, is perhaps the task that has required the greatest effort by the authors. Organization is as great a factor in the mastery of knowledge as in the conduct of business or of politics.

The tendencies in geographies are, on the one hand, to list the facts as independent entities regardless of sequence and perspective. The extreme of this method is found in the treatment of the United States by individual states, in which case the demand for any real organization is ignored. Or, all the continents and countries are treated according to exactly the same outline, *i.e.* in the order of location, area, surface, climate, agriculture, etc. This is sometimes called a scientific organization; but the deadly routine that it establishes shows it to be about as psychological as it would be to describe the appearance of several persons under the

order of head, body, and extremities in each case. And, again, no matter what outline is followed, there is a strong tendency to include many statements that are irrelevant even to the loose headings under which they fall, and that, therefore, destroy sequence and unity.

In order to avoid these tendencies the authors have first fairly *drilled themselves* in the fact that *good literature is organized around ideas of live interest to man;* and that any text whatever, intended for children, if it is to possess the earmarks of good literature, must be organized on this basis, with most careful attention to sequence and perspective. With this principle in mind, they have set to work to do two things: —

First, for each page, more or less, they have fixed upon some central thought that binds firmly together the details underlying it, and secures their unity. What this central idea is in each case is clearly shown in the marginal heading; and by grasping it early, the child is enabled to master a lesson much more quickly and easily than otherwise.

In the second place, the authors have selected for the unifying thoughts, not merely scientific abstractions, but ideas likely to prove of peculiar interest to young students. The treatment of Africa, beginning on page 346, well illustrates this, as well as that of Asia and of China, to which reference has already been made.

Value and extent of physiography

The unifying thought just mentioned is usually some vital problem, from the point of view of which facts are selected and arranged. In solving such problems full use is made of the truth that geography must rest upon a physiographic foundation. The authors believe that, when the physiographic truths about a given region are clearly grasped, most of the other geographic facts easily arrange themselves as links in a causal chain. Thus the many details touching a particular locality are taught in relation to one another, so that they approach the form of a narrative.

Physiography has, therefore, been introduced freely; but under two limitations. First, only such physical facts are included as are shown really to function in man's relation to the earth. Physiography that is clearly shown to have a *real* bearing upon man greatly enriches geography; it is the *unused* physical geography that is a stumbling block. Second, these physical facts are presented in *connection with their use*, not entirely apart from it and in a different part of the book.

Details

1. Why abundant

Few teachers will deny that clearness of comprehension, and interest in any subject, are greatly dependent upon the abundance of carefully selected details. Good stories, such as that of Robinson Crusoe, reveal this fact very plainly. Accordingly, while this volume treats only of the same subjects as other geographies, it contains more detail than any one of them, as is shown by the larger amount of page surface.

2. Danger of abundant detail; and how avoided

One very common objection to such detail is that it makes lessons long, and therefore difficult. That may easily happen, for unorganized details render a line of thought circuitous and confusing, and more to be dreaded than even a skeleton outline. But on the other hand, well organized details make a subject

not only interesting but *simple* and *easy*. It is partly good organization that makes it possible for one to reproduce a long story with ease after a single reading; and it is often largely because of poor organization that even a half page of text is difficult to reproduce.

3. Examples of unusual detail

Accordingly, such topics as farm, cattle ranch, irrigation, lumber camp, and factory are treated at unusual length in connection with the section of country in which each is most prominent.

For example, lumbering, fishing, and the manufacture of cloth, boots, and shoes receive their most detailed treatment in connection with New England; the mining of coal and iron ore and the manufacture of iron goods are discussed in connection with the Middle Atlantic States; and gold mining, irrigation, and grazing are naturally included under the Western States.

The industries and objects thus described, being fairly typical of industries and objects found elsewhere, are on that account worthy of being called *types*.

The study of the United States has furnished occasion for detailed treatment of most geographic types. Some important features and occupations, however, are not found in the United States, but to these the authors have given the same careful consideration. For instance, the Brazilian forest is presented as a type of tropical forests (pp. 218–219). Other illustrations may be found in the treatment of the linen industry on page 244, and of the silk industry on page 263.

Extent of review and comparison

A common defect in the teaching of geography is that pupils are allowed to forget about one country while studying others, and the result is that, by the time Australia is reached, most of what previously has been learned about the United States, as well as other countries, has faded from memory. Yet the relation between North America and the other continents is so marked that this defect is quite unnecessary. For example, most of the industries and basal principles of physiography and climate have received the child's attention when he has completed a general study of the United States. Foreign lands illustrate the same great ideas as our own country, under different conditions. This means that the comprehension of foreign countries may best be gained, if one uses one's previous knowledge of the United States as a basis of comparison. If, then, this old similar knowledge is carefully called to mind when the physiography, climate, and industries of a foreign land are approached, pupils will not only secure a fuller appreciation of that region, but will also freshen their knowledge of the United States.

Such review of the United States is a prominent feature of this volume. For example, in approaching the physiography of South America (p. 210), the physiography and climate of Europe (p. 234), etc., the authors have reproduced at some length the corresponding conditions found in our own country.

To supplement this kind of review, several sets of questions, which call for still different comparisons with the United States, are included, one series being found at the close of the treatment of each continent. These reviews are likewise rich in motive, inasmuch as they recall leading facts in regard to the United States from varying points of view. It should be kept in mind,

also, that each set at the same time reviews another continent from a new point of view.

Pages 173–191 present an organized review of North America alone, which includes the principal facts about our continent that every pupil should know on completing the grades. The last section, "Review of the United States and Comparisons with Other Countries," provides for still further review. It has seemed to the authors an anticlimax to close several years' study of geography with the *Islands of the Pacific*, lands farthest away from us and of least interest. On the other hand, it has been deemed highly important that, after all the countries of the world have been treated, the closing chapter should show in summary the rank of our own land and its relation to others.

Place of general geography

The most difficult part of common school geography is that dealing with the motions of the earth, latitude and longitude, winds, rainfall, ocean currents, and temperature. Yet these subjects are generally placed at the beginning of the advanced book, so that their treatment follows immediately upon Primary Geography. This arrangement requires children to move abruptly from a meager study of the simplest facts to the broadest abstractions, which is thoroughly bad.

In this volume practically all of this difficult subject matter is delayed till after the middle of the course (p. 192). Whatever facts in regard to winds, rainfall, temperature, etc., are needed in the intensive study of North America are plainly stated, when needed, like other concrete facts.

After the study of our continent has been completed, and a fair number of concrete data bearing on these matters has been presented, winds and rain, and ocean movements and distribution of temperature, are treated in detail. By this arrangement, the study of these difficult subjects has been postponed at least one year, until so many of the facts that are necessary to their appreciation have been presented concretely that they then may be approached somewhat inductively. The detailed treatment of latitude, longitude, and standard time, and of the revolution of the earth, with its effects, is not included in the main text at all, but is placed in the Appendix. The authors are convinced that the latter topic should not be studied in the elementary school, and that the former should be omitted by many schools. This arrangement is one of the most important among the distinguishing features of this volume.

The general principles regarding industries, distribution of inhabitants, mutual relation of city and country, and dependence of various sections upon one another, contrary to custom, are also presented in the last part of the volume. One reason is that these principles approach abstractions in their nature, and are, therefore, too difficult to be earlier understood by children. They are, moreover, to a large extent, a summary of what has preceded, and therefore naturally come late, where a more inductive approach is possible. The guiding principle is that comparison of facts (of countries, in this case) should not be undertaken until after the facts themselves have been studied.

How the text may teach proper method of study

While there is no reason why a textbook in geography, more than any other text, should offer suggestions about methods of study, every one knows that children's ways of studying are often extremely crude, involving great waste.

By the insertion of marginal headings, so carefully worded that they usually suggest a single and definite question for the text to answer, it is expected that children will be materially influenced to master their lessons by "*points*" rather than by pages — a very vital factor in the proper method of study.

Use of illustrations

Half-tones from photographs are used whenever possible, and these have been selected with great care from collections of many thousands. In all cases they are introduced, not as mere pictures, but as illustrations of topics treated in the text. It is expected that they will be studied, as well as the text. It is believed that the book is as thoroughly illustrated as is desirable for the needs of the student, and the authors have used care not to overillustrate by throwing together a heterogeneous mass of pictures unrelated to the text. It is their belief that a geography should not be a picture album.

Acknowledgments

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Mr. Philip Emerson of the Cobbett School, Lynn, Massachusetts, and Professor R. H. Whitbeck of the University of Wisconsin have aided in various ways in the preparation of this volume. Valuable assistance in gathering statistics and making lists of books of reference has been rendered by Mr. Irvine Perrine and Miss Kathryn Kyser of Cornell University. The sources of the material for the text have been many, of course; but among them Mills' "International Geography," "The Statesman's Year Book," The United States Census Report, and Ratzel's "History of Mankind" call for special mention.

For the illustrations, many of the drawings have been prepared by Mr. C. W. Furlong, the well known artist. In addition, the authors are especially indebted to William Rau of Philadelphia, from whose extensive collection they have selected a large part of the photographs from which half-tones were made. To other photographers whose pictures have been used — a list far too long to incorporate here — the authors' thanks are due. Special mention should also be made of the assistance rendered by the Philadelphia Commercial Museum, in supplying a series of world product maps, and in giving permission to reproduce certain photographs.

THE AUTHORS

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FIG. 1.

Map showing the claims of France, England, and Spain upon the central part of North America in 1760.

PART I. NORTH AMERICA

SECTION I. GENERAL FACTS

1. Divisions of North America

If you look on the map of North America (Fig. 2), you will see that the continent is divided into several countries. In the center, extending from ocean to ocean, is the *United States*. North of our country is *Canada*, and northwest of that is *Alaska*. South of us lies *Mexico*, and southeast of that is *Central America*. Make a simple drawing of North America, and upon it mark off each of these sections.

The principal divisions of North America

You remember that Spain was the nation that helped Columbus to make his discovery of America. After his voyage, many Spaniards came over and settled in the southern part of the continent. They occupied the portions now marked Mexico and Central America. All this section, and some of the land to the north of it, now a part of the United States, was for many years owned by Spain. Indeed, at one time it all bore the name of *New Spain;* but the government by Spain was so very bad that the people rebelled against it, and, by war, secured their independence.

Some reasons for these divisions

1. Mexico and Central America

Although the Spanish language is still spoken in all that section, it is now divided into several independent countries. The larger part of it, called *Mexico*, is under one government; the part of it marked *Central America* is divided into several little nations. The only reason for calling this part of the continent Central America is its central position between two continents. There is really no country of that name.

The small country of *Panama* occupies the narrow Isthmus of Panama, which joins Central America with South America. It is here that the Panama Canal is being dug to connect the Atlantic and Pacific oceans.

Other nations besides Spain sent explorers to America, and made settlements. Chief among these were the English and the French. The English settlers at first made their homes along the eastern coast, as in Massachusetts and Virginia. The French chose the valleys of the St. Lawrence and Mississippi rivers. Find these rivers on the map. As the result of war, the English obtained control of the French territory, and English became the principal language of all the continent north of Mexico.

2. The United States

Even now, however, one is reminded of the old French rule. French is still heard in New Orleans, near the mouth of the Mississippi River, and it is the common language in the

city of Quebec, on the St. Lawrence River. Point out these cities.

The names of many places in the Mississippi and St. Lawrence valleys, such as New Orleans, St. Louis, and Montreal, are French. They were given when these places belonged to France.

For many years the colonies in America were governed by England; but finally many of the colonists became dissatisfied with English rule. As a result, a war for independence broke out, which lasted several years, under the leadership of General George Washington. The colonists declared themselves independent on July 4, 1776, a date whose anniversary you celebrate every year. Independence was not gained, however, until later, after several years of hard fighting and much suffering.

Our ancestors, after this war, formed a government of their own, which they called the United States. At first there were only thirteen small states in the Union, all near the Atlantic coast. Gradually other states and territories were added, until our country now extends across the continent, as you see.

3. Canada and Newfoundland

England was able to keep a large part of the continent, which is called the *Dominion of Canada*. Canada, which is still a British colony, is a union of states, or *provinces*, like our United States.

You observe, on the map, the large island of *Newfoundland*, in the extreme eastern part of the continent. This also was kept by England and is still a British colony; but it has never joined the Dominion of Canada and has, therefore, a separate government.

4. Alaska

The extreme northwestern part of North America, called *Alaska*, was first explored by the Russians, and they owned it for a long time. Russia finally sold it to the United States, and it still belongs to us.

The boundaries of these countries

Of course, where two countries lie side by side, as do Canada and the United States, there must be some place where one country ends and the other begins. Such a place is called a *boundary*. The boundary lines between the different nations are marked on the map (Fig. 2) by heavy lines. Point them out.

In some parts you will see that a *natural boundary*, such as a river or a chain of lakes, has been chosen to separate two neighboring countries. In other places the boundary does not follow any natural line. In some cases it is even a straight line, cutting across rivers, lakes, and mountains. Examine the boundary of the United States, to see how much of it is natural.

Where the boundary is only a straight line, it is marked by a row of posts or stone pillars, a few rods apart. These you could easily see if you were to cross from one country to another, where there is such a boundary. On your drawing of North America, mark those boundaries of the United States which are natural.

Review Questions

1. Name the principal parts of North America. Write these names. 2. State some of the reasons for such a division of the continent: (*a*) for Mexico and Central America; (*b*) for United States; (*c*) for Canada and Newfoundland. 3. What do you know about Alaska? 4. What natural boundaries has the United States?

2. Maps of North America

Study of maps

1. Political Maps

Figure 2 is a map of North America showing the boundaries of the different countries, and the location of the largest rivers and cities. Such a map is called a *political* map.

Find Greenland on this map. Would you expect it to be an important island? Why?

NORTH AMERICA
Scale of Miles
0 100 200 400 600 800 1000
Relative population of largest cities shown by size of type
Capitals
Longitude West
from Greenwich
ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
CARIBBEAN SEA
GREENLAND
ALASKA
DOMINION OF CANADA
UNITED STATES
MEXICO
CENTRAL AMERICA
WEST INDIES
SOUTH AMERICA
HUDSON BAY
Mt. McKinley
Mt. Logan
Mt. Fairweather
Great Slave Lake
Great Bear Lake
Lake Winnipeg
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
Great Salt Lake
Salt Lake City
Mt. Whitney
Pikes Peak
Blanca Peak
Fremont Peak
Mt. Brown
Cape Flattery
Cape Blanco
Cape Mendocino
San Francisco
Los Angeles
Cape San Lucas
Magdalena Bay
Revilla Gigedo Is.
Cape Sable
Cape Hatteras
Cape Breton
Cape Race
C. Sable
Bermuda Is.
Bahama Islands
Porto Rico
Greater Antilles
Lesser Antilles
Haiti
Dominica
Jamaica
Kingston
Port au Prince
Havana
Cuba
Honduras
Nicaragua
Lake Nicaragua
Panama
Isthmus of Panama
Isthmus of Tehuantepec
Mexico
Guadalajara
Monterrey
Mexico City
Vera Cruz
Acapulco
Merida
Campeche
Yucatan
Brit. Honduras
Belize
Guatemala
San Salvador
Managua
Costa Rica
Tropic of Cancer
Equator
Longitude West 130° 120° 110° 100° 90° 80° 70°
Williams-Prag, N.Y.

FIG. 2.

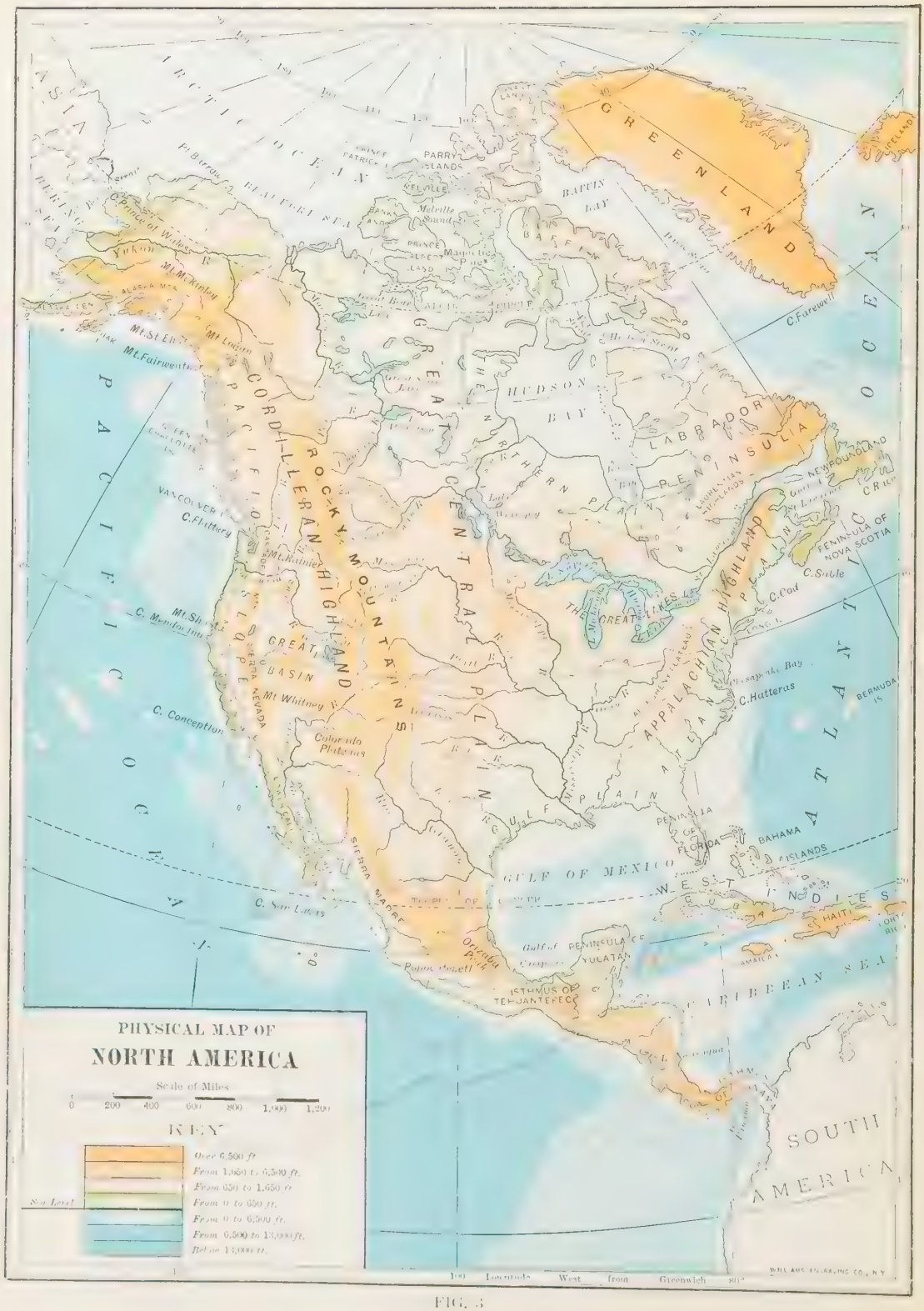
PHYSICAL MAP OF
NORTH AMERICA
Scale of Miles
0 200 400 600 800 1,000 1,200
KEY
Over 6,500 ft
From 1,650 to 6,500 ft.
From 650 to 1,650 ft
From 0 to 650 ft.
From 0 to 6,500 ft.
From 6,500 to 13,000 ft.
Below 13,000 ft.
Sea Level
GREENLAND
ICELAND
BAFFIN BAY
HUDSON BAY
LABRADOR PENINSULA
NEWFOUNDLAND
C. Farewell
C. Race
PENINSULA OF NOVA SCOTIA
C. Sable
C. Cod
C. Hatteras
BERMUDA IS.
BAHAMA ISLANDS
HAITI
JAMAICA
PENINSULA OF FLORIDA
GULF OF MEXICO
WEST INDIES
CARIBBEAN SEA
ISTHMUS OF TEHUANTEPEC
PENINSULA OF YUCATAN
Gulf of Campeche
Orizaba
Popocatepetl
SIERRA MADRE
C. San Lucas
C. Conception
C. Mendocino
Mt. Shasta
Mt. Rainier
Mt. Whitney
Colorado Plateau
GREAT BASIN
SIERRA NEVADA
ROCKY MOUNTAINS
CORDILLERAN HIGHLAND
PACIFIC SLOPE
CENTRAL PLAIN
GREAT PLAIN
GULF PLAIN
APPALACHIAN HIGHLAND
THE GREAT LAKES
L. Michigan
L. Huron
L. Erie
L. Ontario
L. Superior
L. Winnipeg
L. Athabasca
L. Great Bear
L. Great Slave
L. Mistassini
L. Nipigon
L. Manitoba
L. Winnipegosis
L. Reindeer
L. Athapaskaw
L. Nelson
L. Kamanistiquia
L. Ste. Claire
L. Nipissing
L. Abitibi
L. Mistassini
L. Kaminist

FIG. 4. — Relief map of North America

Trace the Mississippi River. Three other great rivers of North America are the St. Lawrence, the Mackenzie, and the Yukon. Find each. What would you say about the importance of the Mackenzie and Yukon rivers, in comparison with that of the St. Lawrence and the Mississippi? Why?

2. Relief Maps

Figure 4, a *relief* map, is a very different kind of map from Figure 2. Its purpose is to show the heights of the land, or the higher and lower parts of the continent. There is still another kind of map called a *physical* map, of which Figure 3 is an example. It also shows the heights of the land, not by the shading, but by colors. The different colors show the different heights, as is explained by the key under the map.

3. Physical Maps

What great mountain system, or highland, do you find in the western part of North America? Find it on both the relief and the physical maps. What great highland do you find in the east? In what direction does each of these highlands extend? Which is the broader? Which the higher? Trace, as nearly as you can, the boundaries of each.

Where is the lowest land between these two highlands? Show the length and width of the Mississippi Valley. Notice the slope east of the Appalachian Mountains (Fig. 5). Is it longer or shorter than that west of the western Highlands? What are the main slopes in North America? Upon which of these slopes do you live? Point as nearly as you can to the place where your home is.

FIG. 5. — A section across the United States from the Atlantic to the Pacific ocean, showing the highlands and lowlands

On Figure 2 find New York and San Francisco. If you were to travel westward from the former to the latter place, you would have to pass over many hills, valleys, and mountains. Some of the slopes would be short and gentle; others would be very long, sometimes gentle, sometimes steep. Make a drawing showing the chief slopes you would cross in making that journey.

Review Questions

1. What do you understand by a political map? 2. By a relief map? 3. By a physical map? 4. What are the principal slopes in North America? 5. Name the principal mountain ranges. 6. The principal rivers. 7. The largest lakes. 8. The largest islands, peninsulas, gulfs, and bays. 9. Make a drawing of the continent, putting in the names of all these.

SECTION II. THE UNITED STATES

1. General Facts

Map study

1. What waters border the United States? 2. What countries? 3. Find the Appalachian Mountains. 4. What are the names of the mountain chains in western United States? 5. Make a drawing of the Mississippi River and its larger tributaries. 6. Make a drawing of the United States, putting on it the largest rivers and lakes, with their names; also the largest cities. (You will find a list of them in the Appendix.)

The extent of the United States

If you look on Figure 6 you will see that its scale is about an inch to 325 miles. Knowing this fact find how many miles it is across our country from north to south, measuring from our northern

UNITED STATES
WESTERN PART
Scale of Miles
0 50 100 200 300 400 500
WILLIAMS ENGRAVING CO., N.Y.
Longitude West 110° from Greenwich
BRITISH COLUMBIA
DOMINION OF CANADA
SASKATCHEWAN
MANITOBA
WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
MINNESOTA
IOWA
MISSOURI
MEXICO
GULF OF MEXICO
PACIFIC OCEAN
Seattle
Portland
Los Angeles
San Francisco
Denver
Pueblo
Las Cruces
Tucson
Bisbee
Hermosillo
Mazatlan
Zacatecas
S. Luis Potosi
Tampico
Tepic
Brownsville
Galveston
Houston
Austin
Wichita
Winfield
Joplin
Oklahoma City
Ardmore
Texarkana
Shreveport
Beaumont
Laredo
San Antonio
Denver
Colorado Springs
Pikes Peak
Cripple Creek
Pocatello
Montpelier
Twin Falls
Boise
Helena
Billings
Bismarck
Fargo
Fergus Falls
Minneapolis
St. Paul
Sioux City
Des Moines
Council Bluffs
Omaha
Beatrice
Lincoln
Kansas City
Topeka
Winnipeg
Regina
Lake Winnipeg
Winnipegosis
Mt. Baker
Mt. Rainier
Mt. Hood
Mt. Shasta
Mt. Whitney
Mt. S. Bernardino
Pt. Conception
C. San Lucas
C. Flattery
Columbia R.
Snake R.
Yellowstone L.
Fremont Peak
Pacific Ocean
Gulf of California
Rio Grande
Arkansas
Platte
Missouri
Red R.
Canadian
Red L.
Lake Winnipeg

FIG. 6.

UNITED STATES
EASTERN PART
Cities with over 1,000,000 ..... New York
Cities with 500,000 to 1,000,000 ..... Boston
Cities with 200,000 to 500,000 ..... Buffalo
Other Places ..... Denver
Capitals with less than 200,000 ..... DOVER
Scale of Miles
0 50 100 200 300 400 500
Longitude 90° West from 85° Greenwich
GULF OF MEXICO
ATLANTIC
NORTH DAKOTA
SOUTH DAKOTA
MINNESOTA
WISCONSIN
MICHIGAN
NEBRASKA
IOWA
ILLINOIS
INDIANA
OHIO
KANSAS
MISSOURI
KENTUCKY
VIRGINIA
OKLAHOMA
ARKANSAS
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
MISSISSIPPI
ALABAMA
GEORGIA
TEXAS
FLORIDA
MAINE
VERMONT
MASS.
NEW YORK
PENNSYLVANIA
MARYLAND
DELAWARE
NEW JERSEY
MANITOBA
ONTARIO
QUEBEC
NEW BRUNSWICK
NOVA SCOTIA
CUBA
BAHAMA ISLANDS
ISLE OF PINES
Lake Winnipeg
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
Lake Champlain
Lake Winnipeg
Lake Manitoba
Lake Winnipegosis
Lake Michigan
Lake Superior
Lake Huron
Lake Erie
Lake Ontario
Lake Champlain
Lake Pontchartrain
Lake Okeechobee

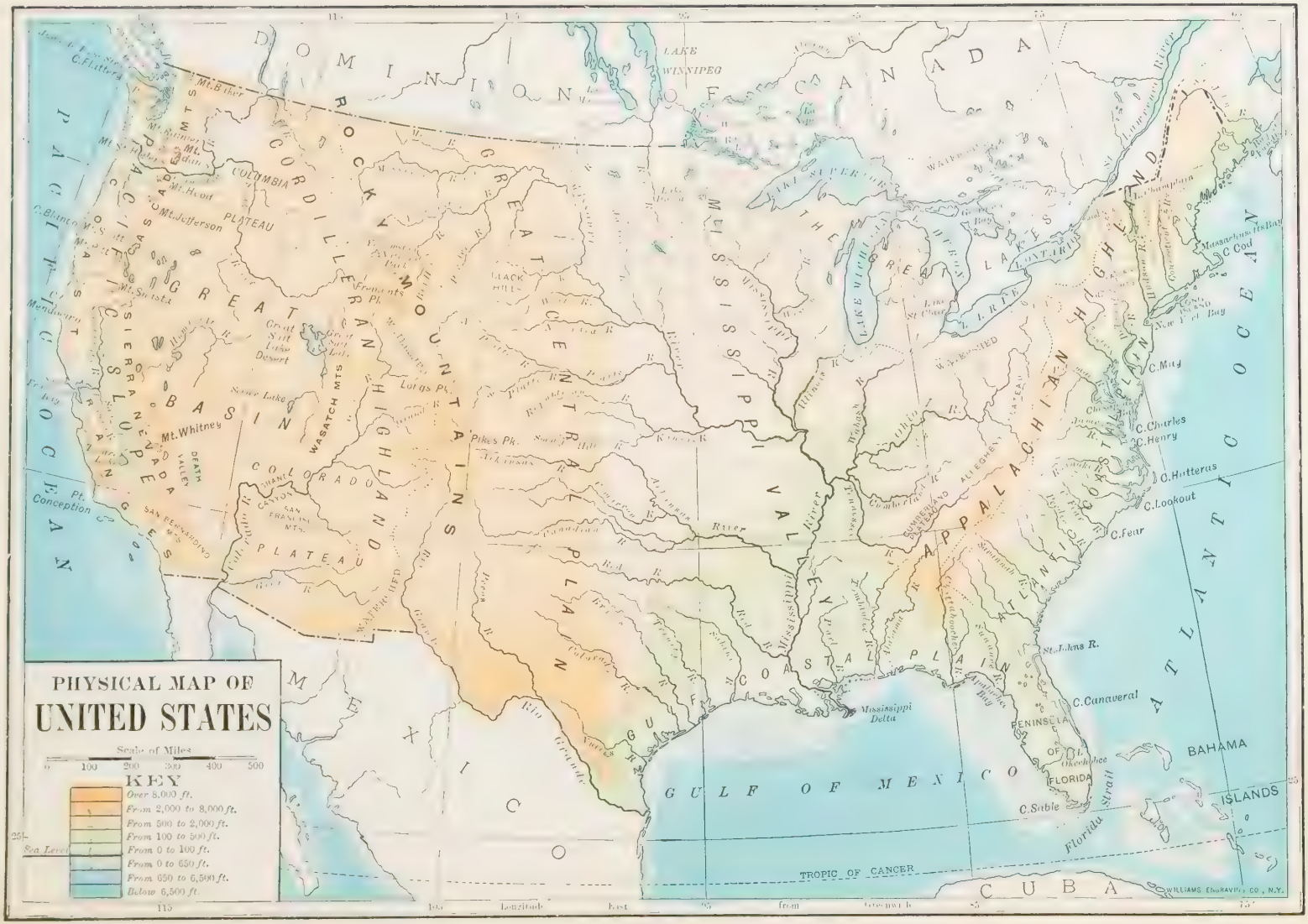
PHYSICAL MAP OF
UNITED STATES
Scale of Miles
0 100 200 300 400 500
KEY
Over 8,000 ft.
From 2,000 to 8,000 ft.
From 500 to 2,000 ft.
From 100 to 500 ft.
From 0 to 100 ft.
From 0 to 650 ft.
From 650 to 6,500 ft.
Below 6,500 ft.
Sea Level
DOMINION OF CANADA
LAKE WINNIPEG
ROCKY MOUNTAINS
CORDILLERAN HIGHLAND
GREAT CENTRAL PLAIN
MISSISSIPPI VALLEY
THE GREAT LAKES
APPALACHIAN HIGHLAND
ATLANTIC COASTAL PLAIN
GULF COASTAL PLAIN
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
MEXICO
CUBA
BAHAMA ISLANDS
PENINSULA OF FLORIDA
COLUMBIA PLATEAU
GREAT BASIN
SIERRA NEVADA
COLORADO PLATEAU
WASATCH MTS
SAN FRANCISCO MTS
SAN BERNARDINO MTS
DEATH VALLEY
Mt. Whitney
Mt. Jefferson
Mt. Hood
Mt. Baker
Mt. Shasta
Mt. Adams
Great Salt Lake Desert
Longs Pk.
Pikes Pk.
Fremonts Pk.
Mississippi Delta
Mississippi River
Rio Grande
Florida Strait
Massachusetts Bay
C. Cod
C. May
C. Charles
C. Henry
C. Hatteras
C. Lookout
C. Fear
C. Canaveral
C. Sable
St. Johns R.
Pt. Conception
C. Blanco
C. Flattery
TROPIC OF CANCER
WILLIAMS ENGRAVING CO., N.Y.

FIG. 7.

FIG. 8. — Relief map of the United States.

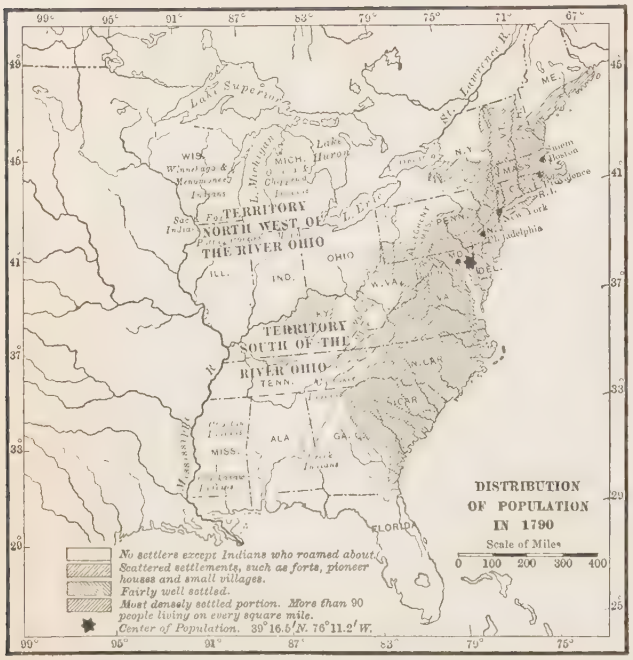

FIG. 9. — Distribution of population in the United States in 1790.

boundary to the mouth of the Rio Grande. Find the width of our country in an east-west direction, from New York to San Francisco. The United States contains about 3,000,000 square miles, and is not quite so large as Canada. How does it compare with Mexico in size?

Steps in the growth of the United States

1. The thirteen original states

As we have seen, the states that formed our Union after the War of Independence were thirteen in number. These were New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia. Find each of these states on the map, Figure 138. How many of them do not border on the ocean? What a small part of the United States they now form!

Our flag still has its thirteen red and white stripes, to remind us of these thirteen original states. At first there were only thirteen stars in the blue field of the flag. But a star has been added for each new state, until now there are many more. Count the stars in the flag to see how many states there are now.

In Figure 9 observe how little of the country east of the Mississippi River was settled by white people in 1790. Note the principal cities at that time. Explain the meaning of the star.

2. States of the Mississippi Valley

To form the many new states, several great sections of land have been added, at different times, to the original thirteen states (Fig. 10).

At the close of the War of Independ-

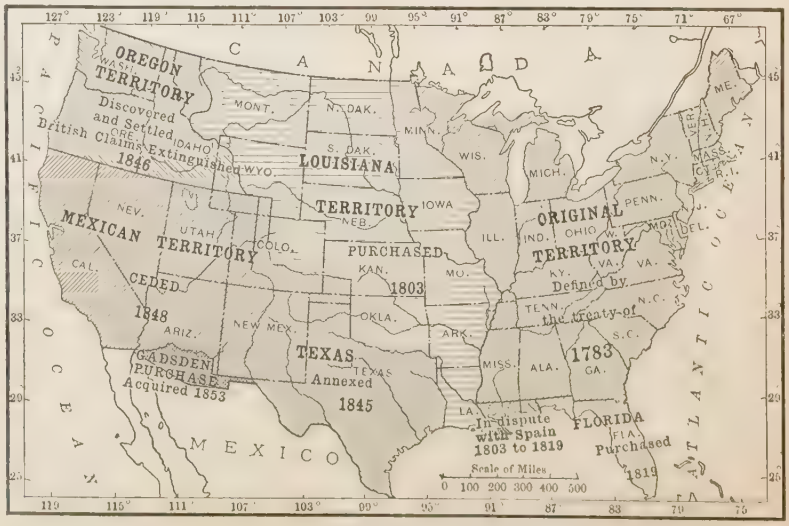

FIG. 10. — Map to show when and how the United States obtained its territory.

ence, all the land east of the Mississippi River belonged to the Union, except Florida and a narrow strip along the coast west of Florida. For many years, however, the part between the Appalachian Mountains and the Mississippi River was not made into states. Indeed, it was a wilderness, about which very little was known, because the Appalachian Mountains were like a great wall, shutting people out of the Mississippi Valley.

Trappers and traders first forced their way into this valley. Among these were David Crockett and Daniel Boone, who had many thrilling adventures with the Indians, some of which you may have read about. Then, when it was learned what an attractive region this was, settlers rapidly followed, and states were soon formed. Name some of these states.

Pioneers quickly pushed across the Mississippi River, over the *Great Plains*, as far as the Rocky Mountains. Nearly all the vast region between the Mississippi River and the Rocky Mountains, except Texas, was bought from France in the year 1803. Name some of the states that have been formed from it.

3. Florida and Texas

Florida, together with a narrow strip of land along the Gulf of Mexico, was bought from Spain in 1819. Texas, which had once been a part of Mexico, obtained its independence from that country; and later it entered the Union.

4. States west of the Rocky Mountains

The highlands of western United States are much broader and more difficult to cross than the Appalachian Mountains, and for a long time few men were daring enough to try to reach the Pacific coast. When rich gold deposits were discovered near the west coast, however, many thousands started in haste for that region. Partly by purchase, and partly by war with Mexico, our country had already obtained possession of this western land; and, as it became rapidly settled, states were formed from it. Name some of them.

Our growth in population

At the close of the War of Independence, in 1783, there were only about three million white persons living in the United States. Now we have over ninety millions, or

FIG. 11.—Density of population in North America at the present time.

more than are found in all the other countries of North and South America together. Our country has more inhabitants than France, or Germany, or any European nation except Russia. It should be remembered, too, that those countries are very old, and had been settled for centuries when America was

discovered. Dating the birth of our nation from 1776, how old is it? Observe how thickly the United States is now settled, as shown in Figure 11.

Reasons for this growth

1. Our temperature

One reason for this rapid growth in population is the fact that our country is situated in the *temperate zone*. The great heat in the torrid zone makes it difficult to work and unhealthful to live there. On the other hand, the extreme cold of the frigid zone makes it difficult to get a living, no matter how hard one works. In the temperate zone, we find neither of these drawbacks. There is not too much heat for comfort or health, and yet there is plenty for the growth of plants.

Our country is so large that there may be much difference in temperature between one part and another. In southern Florida, there is never any frost or snow, and such crops as bananas and pineapples can be grown, as in the torrid zone. Cotton, sugar cane, rice, and oranges, which require a warm climate, are cultivated in our Southern States. Farther north we can produce the more hardy crops, such as wheat and oats, that thrive in a cooler climate. There are few countries that have such variety of temperature as ours.

2. Our rainfall

Over a large part of the United States there is plenty of rain for farming and gardening. In several of the Western States, however, there is so little rain that no crops can be grown without irrigation. In fact, some parts of the West are true deserts, with farming only on the oases, as in the Sahara. In spite of their dryness, large portions of these sections are useful for grazing; and the western part of the United States is one of the most important regions in the world for raising sheep and cattle. Thus the differences in rainfall, as well as in temperature, help to give us a variety of products.

3. Our soil

Fertile soil, as well as heat and rain, is necessary in order that people may have food, clothing, and shelter. Few countries in the world have as much deep, rich soil as our own. There are many kinds, too, so that many kinds of crops can be raised.

On the whole, the climate and soil of our country are so favorable, and so varied, that the United States produces almost all the crops necessary for food, clothing, and shelter.

4. Our minerals

The mineral products, from the rocks beneath the soil, are also of great value. In our western mountains are gold, silver, lead, and copper mines of untold richness. Enormous amounts of copper and iron ore are mined in the states that border Lake Superior. Coal, too, is abundant in many of our states, so that there is plenty of fuel for manufacturing these various metals into useful articles. In addition, we have valuable building stone of many kinds, and clays, salt, and other useful mineral products. Indeed, the rich supply of minerals found in the United States is one of the chief reasons for our remarkable growth as a nation.

5. Our plains and mountains

It is of great advantage that we have so many different kinds of land in our country. There are the *coastal plains*, that lie between the Appalachian Mountains and the sea. Here the land is so level and fertile that farming is easy. Far larger than these are the *central plains*, through which the Mississippi River and its tributaries flow. This level country

makes one of the finest farming sections in the world. There are also many smaller plains, and much gently rolling and hilly land suited to agriculture.

The higher hills, mountains, and plateaus are valuable in a different way. They cause the moisture in the air to be condensed into rain and snow, which keep the rivers filled with water. In addition, they are the source of valuable minerals, and they are often covered with forests, which supply us with the lumber that we need for so many purposes.

6. Our conveniences for transportation

The minerals and other raw products have to be transported from the mines to the factories, and then the manufactured articles must be distributed far and wide over the country. It is important, therefore, that there be abundant means for shipping goods.

The railroads now do much to supply this need, but our natural highways, or waterways, have met it well from the beginning. First of all, note (Fig. 2) how the Mississippi River and its tributaries make it possible for boats to reach the ocean even from the heart of the country. Trace some of the larger of these rivers, and write their names.

The Great Lakes on the north are other important waterways on which vessels may travel for many hundreds of miles. How many such lakes are there? There are also many smaller rivers and lakes of importance for transportation. Can you name some of them, and point them out on the map?

It is necessary to send some goods to foreign lands, and to bring others from foreign countries to our shores. Here again the United States is fortunate. One of our coasts faces Europe, and is well supplied with excellent harbors. Trace this coast line, to see how irregular it is, thus making fine harbors possible.

Our Southern coast, too, has some excellent harbors, from which ships can easily sail to Europe, the West Indies, Mexico, and the countries of South America. Vessels can also go from port to port along our coast, carrying goods from one place to another.

Our Western coast faces Asia, where there are enormous numbers of Chinese, Japanese, and other people. This coast likewise has some excellent harbors, from which steamship lines now run to many ports on the Pacific and Indian oceans.

No other country has so favorable a situation for trade with all parts of the world as ours. In fact, no other large country has a seacoast, with an abundance of good harbors, on both the Atlantic and Pacific oceans.

7. Our free land

There have been still other powerful attractions that have drawn foreigners to our country. One of these has been the free land. Any one who has cared to come here and live for a few years could obtain a good-sized farm to live upon. That has been a help indeed to many a man. So many people have been attracted to this country from other lands, that almost all the free farm land has now been taken up.

Even where there was no land to be given away, it has often been possible to buy it at a very low price, — only a few dollars an acre, — which even a poor man, with energy, could hope to pay. Millions of our people have come

to the United States, attracted by the free or cheap farm lands.

8. Our free education

In some countries of Europe many of the people are still very ignorant. In the United States, on the other hand, an effort is made to give every one an education. One of the first things our forefathers did was to establish schools, and now there are schools, colleges, and universities throughout all the land. Most of this education is free, and any one can obtain it. Our excellent system of education is one of the chief causes of our rapid advance, for educated people can do things which ignorant people cannot do.

9. Our free government

Another great attraction to many persons has been our free government. In some countries the rulers do not let the people share in the making of laws. They seize private property; they arrest men and throw them into prison, or drive them from the country, or put them to death, without trial.

After the War of Independence, our forefathers established a government called a *democracy*. In this, the people elect some men to make laws, and others to execute them. That is the kind of government we still have. All the officers are really *servants* of the people, and not masters; and most of them are paid by the people for their work. The object of the government is to help every one, as far as possible, and not to worry or oppress any one.

Millions of men have died fighting against a despotic form of government; and it is no wonder that other millions have braved great hardships to reach a land where they were free from it. There is, perhaps, no country on the earth where an honest man, with ability and energy, can prosper more easily than in the United States.

Immigrants to the United States

These are some of the more important reasons why our population has increased so rapidly. Aside from the people who have been born in this country, millions have come from Europe and Asia; and they still come in almost every ship that carries passengers. Such people are called *immigrants*, and most of them land at New York.

From that city they scatter in all directions, and settle in every part of the country. These immigrants have greatly helped to develop our nation, and to make the United States one of the great powers of the world. They have been eager to come here, and most of them have been eager to stay, for they have learned to love this land. You probably know some immigrants yourself, for they are all about you. Ask some of them why they came here, and whether this country is as good to live in as the one they left.

Reason for studying the United States in sections

Our country is so large that it is necessary to divide it into sections, in order to study it in proper detail. Accordingly, the states have been grouped into four sections, of which the first is the Northeastern Group. The others, in their order, are the Southern States, the Central States, and the Western States.

Importance of watching the scale of maps

As you study each of these sections, a very important point to notice is the *scale* upon which each map is drawn. For example, in Figure 13, an inch represents about seventy-five miles. According to that scale, how long is the state of Connecticut?

Find what the scale is on the map,

Figure 6. Using that scale, find the distance from New York to Buffalo. From Philadelphia to Boston, by way of New York. When studying a map, whether in this book, on the wall, or in an atlas, it is always important to observe its scale first.

Review Questions

1. What is the size of the United States? How does it compare in size with other countries? 2. Name the first thirteen states of our Union, and locate them. 3. What great sections of land have been added to these, to make the number of states that we now have? 4. Tell about our growth in population. 5. Show that our temperature is one reason for so great a population. 6. How is our rainfall a second reason, and our soil a third? 7. How are our minerals a fourth reason? 8. Show that our plains and mountains are a fifth reason. 9. How have our conveniences for transportation helped our growth? 10. How has our free land helped? 11. Our free education? 12. Our free government? 13. Tell about the immigrants to the United States. 14. Why is it important to watch the scale of any map used?

Suggestions

1. Read the life of Daniel Boone or David Crockett. 2. Find out what steps a man has had to take, in order to get possession of free land in this country. 3. Learn what is done with the immigrants when they land at Ellis Island in New York Harbor. 4. Do you see any dangers to this country in allowing all people to come here from other countries who desire to come?

2. The Northeastern States

Map study

1. Name these states. Write the names. 2. Which has no seacoast? 3. Which state extends farthest east and north? Which farthest south? Which farthest west? 4. What natural boundaries do you find between them? 5. Which of them border on Canada? On the Atlantic Ocean? 6. What two large lakes form part of the boundary on the West? 7. What mountain system crosses these states? 8. Which states are most mountainous? 9. Name and trace the course of the chief rivers. 10. What do you observe about the direction in which the principal rivers flow? 11. Name and locate three lakes; three bays; three capes and three islands. 12. To which state does Long Island belong? 13. Find New York City. Using the scale, about how far is it from New York City to Boston? To Philadelphia? 14. Walk toward New York City. 15. In what direction would one have to sail from New England, in order to reach England?

The area of these states

Of the nine states in this group the six farthest northeast are called *New England*. What are their names? What are the names of the other three? On the map of the United States (Fig. 6) you can see what a small part of our country these states make. All of them together are much smaller than Texas, yet they form nearly one fifth of our whole number of states.

Which is the smallest of these states? It is the smallest state in the Union. One of the New England States is about as large as the other five together. Which one is it? Even this, however, is much smaller than New York, the largest of the Northeastern States.

Character of their surface

A large part of the surface of these states is hilly or mountainous. Near the coast the hills are low, and much of New Jersey is a plain; but the land rises gradually toward the interior until the mountains are reached. West of the mountains, in New York and Pennsylvania, the country is a low, hilly plateau with some plains, especially along the shores of lakes Erie and Ontario.

The mountains have different names. In Pennsylvania are the Appalachian Mountains which extend southward into the Southern States. North of the

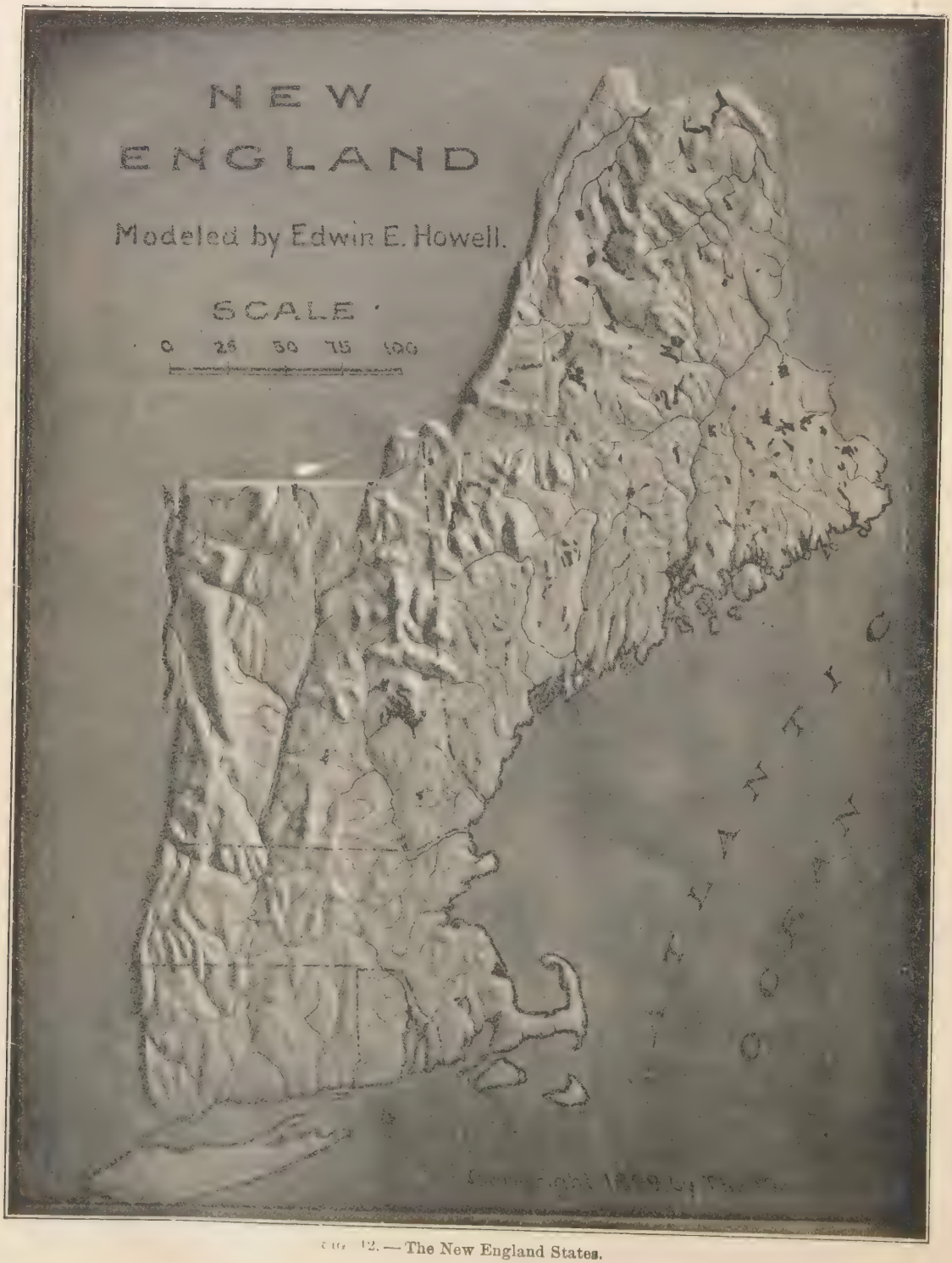

FIG. 12. — The New England States.

NORTHEASTERN STATES
(WESTERN SECTION)
Scale of Miles
0 25 50 75 100 125 150
Cities with over 1,000,000 NEW YORK
Cities with 500,000 to 1,000,000 Pittsburg
Cities with 100,000 to 500,000 Rochester
Cities with 25,000 to 100,000 Auburn
Smaller places Oswego
Capitals with less than 25,000 DOVER
National Capitals
State Capitals
Other Cities
Longitude West
QUEBEC
CANADA
ONTARIO
GEORGIAN BAY
LAKE ONTARIO
LAKE ERIE
Ottawa
Montreal
Kingston
Watertown
Toronto
Stratford
Hamilton
Niagara Falls
Buffalo
Lackawanna
Batavia
Rochester
Newark
Fulton
Oneida Lake
Utica
Oneida
Auburn
Syracuse
Canandaigua
Seneca Falls
Geneva
Seneca L.
Cayuga L.
Cortland
Keuka Lake
Hornell
Ithaca
Norwich
Schenectady
Watervliet
Albany
Troy
Amsterdam
Glens Falls
Hudson Falls
Lake Champlain
ADIRONDACK MTS.
CATSKILL MTS.
Pittsfield
Fredonia
Dunkirk
Chautauqua Lake
Erie
Jamestown
Elmira
Binghamton
Kingston
Poughkeepsie
Newburgh
Emporium
Oil City
Dubois
Clearfield
Williamsport
Carbondale
Scranton
Wilkes-Barre
Hazleton
Youngstown
Newcastle
Butler
Beaver Falls
Pittsburg
Braddock
McKeesport
Greensburg
Monessen
Duquesne
Washington
Wheeling
Altoona
Johnstown
Harrisburg
Shenandoah
Allentown
Easton
Reading
Lancaster
Norristown
Trenton
Paterson
Hoboken
Passaic
Jersey City
E. Orange
Newark
Elizabeth
Perth Amboy
New Brunswick
Yonkers
Stamford
Bridgeport
New Haven
New Rochelle
Mt. Vernon
LONG ISLAND
NEW YORK
PHILADELPHIA
Camden
Chester
Wilmington
York
Baltimore
Washington
Hammonton
Bridgeton
Millville
Atlantic City
Cape May
Delaware Bay
ATLANTIC OCEAN
PENNSYLVANIA
NEW JERSEY
CONN.
ALLEGHENY MTS.
APPALACHIAN MTS.

FIG. 13

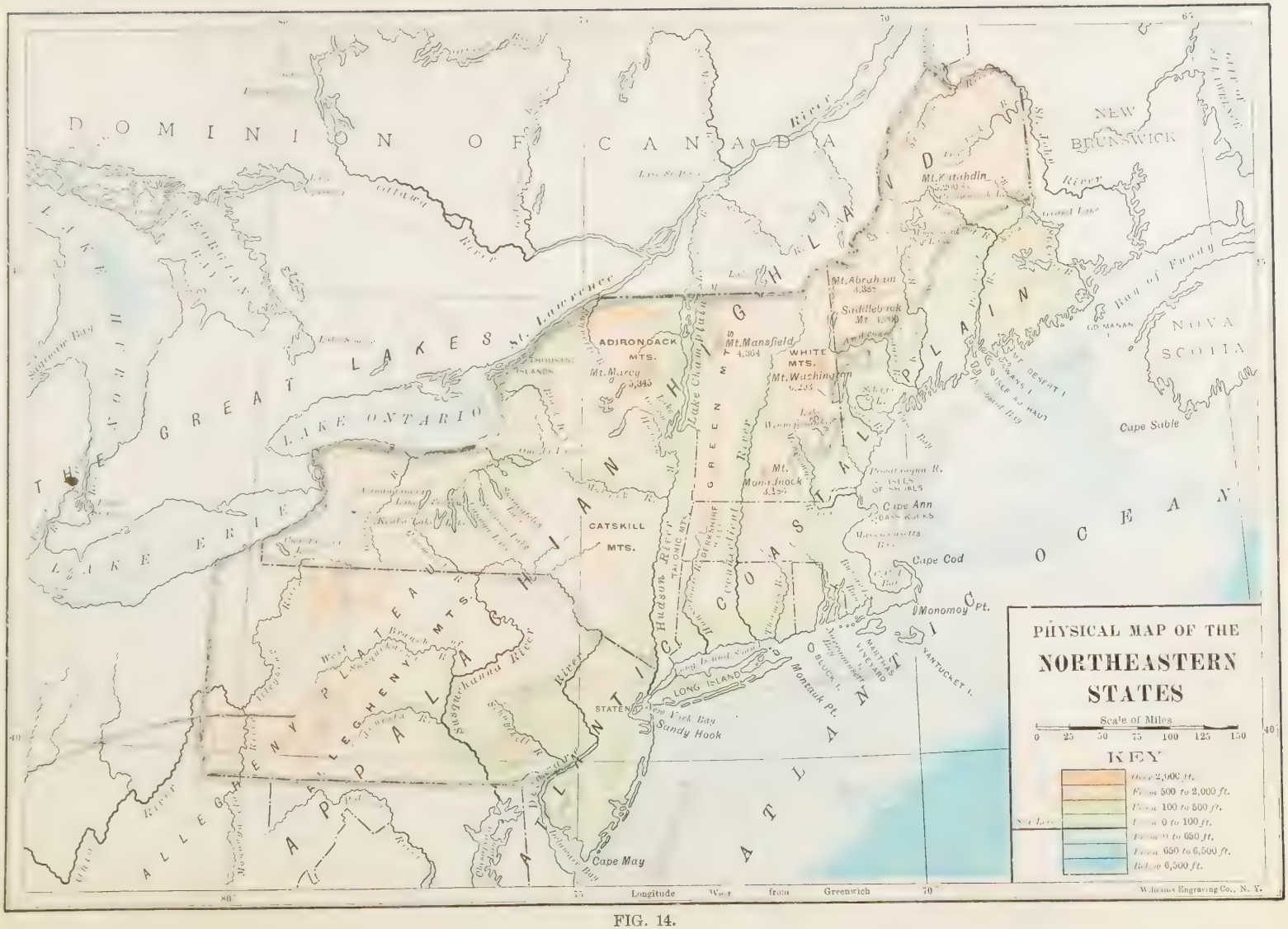
PHYSICAL MAP OF THE
NORTHEASTERN
STATES
Scale of Miles
0 25 50 75 100 125 150
KEY
Over 2,000 ft.
From 500 to 2,000 ft.
From 100 to 500 ft.
From 0 to 100 ft.
From 0 to 650 ft.
From 650 to 6,500 ft.
Below 6,500 ft.
DOMINION OF CANADA
NEW BRUNSWICK
NOVA SCOTIA
THE GREAT LAKES
LAKE ONTARIO
LAKE ERIE
LAKE HURON
GEORGIAN BAY
St. Lawrence
Ottawa River
St. John River
Bay of Fundy
Gulf of St. Lawrence
Mt. Katahdin
Mt. Abraham
Saddleback Mt.
Mt. Mansfield 4,364
Mt. Marcy 5,345
Mt. Washington
Mt. Monadnock 3,156
ADIRONDACK MTS.
WHITE MTS.
CATSKILL MTS.
GREEN MTS.
Lake Champlain
Hudson River
Connecticut River
TACONIC MTS.
BERKSHIRE HILLS
ALLEGHENY MTS.
ALLEGHENY PLATEAU
APPALACHIAN HIGHLAND
ATLANTIC COASTAL PLAIN
ATLANTIC OCEAN
Susquehanna River
Delaware River
Cape Sable
Cape Ann
Cape Cod
Monomoy Pt.
Montauk Pt.
Sandy Hook
Cape May
LONG ISLAND
STATEN
New York Bay
BLOCK I.
MARTHAS VINEYARD
NANTUCKET I.
GD. MANAN I.
MT. DESERT I.
WAYNE I.
ISLE AU HAUT
Longitude West from Greenwich
Williams Engraving Co., N. Y.

FIG. 14.

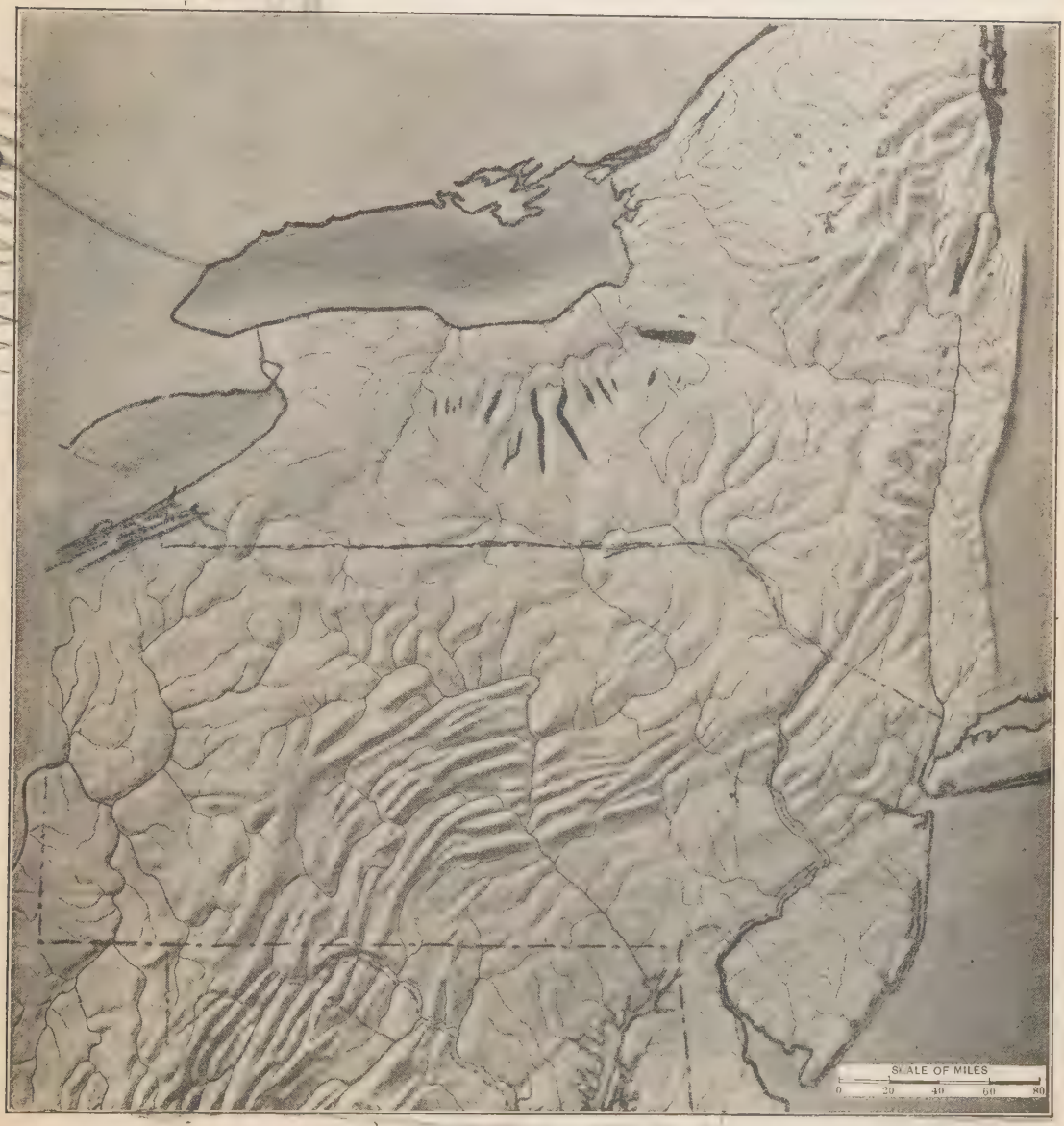

FIG. 15. — Relief map of Middle Atlantic States.

FIG 16. — A view of the White Mountains of New Hampshire.

Appalachian Mountains are the Catskill and Adirondack Mountains in New York. Find the Green Mountains and the White Mountains in New England. Mount Washington in the White Mountains is the highest peak in all these States, being a little over a mile high.

FIG. 17. — A view of Niagara Falls.

In this hilly and mountainous land there are many lakes, as you can see by the map; and many waterfalls, the largest being Niagara Falls, the grandest waterfall in the world. Much of the surface is very rough and rocky, with bold cliffs and the soil strewn with stones.

Character of the coast, with reason

The coast of this entire section is very irregular, with many capes, peninsulas, bays, sounds, and harbors. This irregularity of coast line is due to the fact that the land has been lowered, and the ocean has entered the valleys forming bays and harbors, while the higher parts have remained above the sea as

capes and peninsulas. This sinking of the land has therefore been very important, for it has made safe places where ships can load and unload. It has made possible such large and busy seaports as Boston, New York, and Philadelphia.

The northern part of the Northeastern States has a bold, rocky coast, with much grand scenery. But the coast of New Jersey is low and sandy, with fine sand beaches, where the bathing is excellent.

Photograph supplied by Pennsylvania Railroad.

FIG. 18.—Bathing on Cape May Beach, New Jersey

The climate

1. In the North

Northern Maine lies so far north that it has a severe climate; but it is made even more severe by the influence of a cold ocean current which flows along the northern coast.

This is called the Labrador current, because it flows past the Labrador coast. It is a slowly moving stream of ocean water, many miles wide, that begins in the Arctic Ocean and flows southward along the coast of Nova Scotia and New England as far as Cape Cod.

On the other hand, there is a current of warm water that makes the southern portion of New England warmer than it would otherwise be. This current, called the Gulf Stream, comes from the Gulf of Mexico and flows northeast, out into the Atlantic Ocean (Fig. 282). East of New England it is much farther from land than the Labrador current.

The prevailing winds blow from the west; but every few days, the direction of the wind changes to the east or south, and the air then comes from the ocean, often bringing rain. The winds that blow from the east and northeast are cool in summer and very chilly in winter, because they are cooled in passing over the Labrador current. They often cause heavy snows in winter, and rain and fog in summer. Those winds that blow from the south, on the other hand, are warmed in passing over the Gulf Stream. Largely for that reason, the southern part of New England is much warmer than the northern part, and has little snow in winter.

2. In the South

The climate of most of New York and Pennsylvania is much like that of New England; but the New Jersey coast has a much warmer climate, for here the effect of the warm Gulf Stream is felt. For this reason Atlantic City, for instance, has such mild weather that many people go there to escape the cold of winter and early spring.

In spite of their small area and rugged surface, the Northeastern States contain over twenty-one million inhabitants, or nearly one fourth of the people in the United States. One of them, New York, has more inhabitants than any other state in the Union. It contains also the largest city in the New World. Pennsylvania is next to New York in population and in size.

Population of these states

It is interesting to learn why so many people have crowded together in this small section. What special kinds of work can have attracted them here?

Why so great a population

mountainous land (Figs. 12 and 15). Name the states that contain mountains.

Even in sections where there are no mountains, the country is often so hilly and rocky that much of the land cannot profitably be farmed. The slopes are too steep, or the soil is too thin and stony. There are so many people living in these states, however, that even much land with thin, stony soil and steep slopes is cultivated.

In so hilly a country farming on a large scale is seldom possible. The land is cut into small fields with patches of woodland here and there (Fig. 19).

FIG. 19. — A view in the hilly region of New England, dotted with patches of woodland and of land cleared for farming.

Among the most common products are such fruits and vegetables as find a ready market in the neighboring cities. This kind of farming is known as *truck farming;* for the many things that are raised, such as tomatoes, onions, beans, peas, sweet corn, berries, apples, and radishes are called *truck.* These products are eaten fresh in great quantities. But the dense population of these states calls for enormous quantities of canned fruits and vegetables, also; and many gardeners and farmers raise crops mainly for canning.

2. Why small farms, often used for truck farming

The principal occupations are the same as those found elsewhere; namely, agriculture, lumbering, fishing, mining, manufacturing, and commerce. Some of these occupations, however, have become far more important than others, and we shall now find out which these are.

Agriculture, the most important occupation in the world, is not so important in these states as in many other places. One reason for this is that there is so much

Agriculture
1. Not especially prominent

Much poultry including ducks, chickens, turkeys, and geese are raised for food. Eggs, therefore, are a very important product.

3. Why much dairying and raising of animals

One of the chief farming industries is *dairying.* The many inhabitants of this

FIG. 20. — A herd of dairy cows grazing in the pasture. Their milk is sent to the cities.

section require great quantities of milk, butter, and cheese; and even where other crops will not flourish, the land produces grass. Wherever one travels through these states, he is likely to see beautiful pastures and fine cattle. While butter and cheese are made in every state in the Union, this work is especially important in New York.

The number of cows in a dairy herd varies from a dozen to several score. In summer they are allowed to graze in the pastures, but during the winter they are kept in large barns, where hay and grain are fed to them. Twice each day they are milked, and the milk may be sent to a neighboring city to be sold, or it may be made into butter and cheese.

UTICA, on the Mohawk River, is an important cheese market; and small cheese and butter factories, or *creameries*, are scattered over New York. They are common in other states, also. These creameries furnish a ready market for milk, and are therefore of great value to the farmers near by. So much milk is needed in the large cities that special arrangements are made for supplying it. Special cars, and even whole trains, carrying nothing but cans of milk, are run to these cities from far out in the country.

Besides dairy products, the cattle furnish meat for food and hides for leather. In addition to cattle many hogs, horses, and sheep are raised, the sheep furnishing meat, wool, and skins.

4. Some of the most fertile sections, and their products

There are many sections in which the farm land is of the very best quality. This is true, for instance, of the Connecticut Valley, in which much grain and tobacco are raised. Trace the Connecticut River. It is true, again, of the southern half of New Jersey and of eastern Pennsylvania. Here the climate is so mild that such crops as grapes and peaches are raised. Apples, grapes, and other fruits also thrive on the fine farm land of western New York, especially near Lakes Erie and Ontario. Here the water of the lakes warms the air in the fall and winter, so that there is less danger from frosts than in other regions.

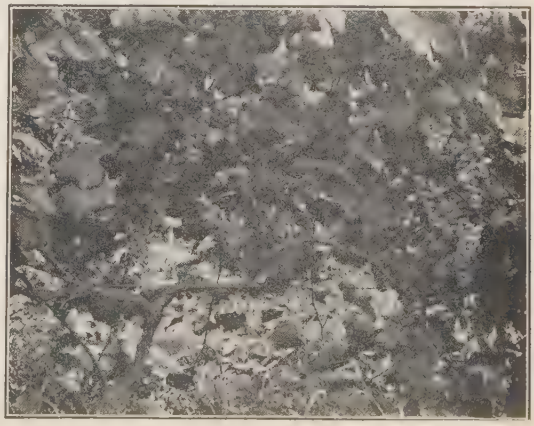

FIG. 21. — Grapes on a vine in a vineyard in western New York

There is so much fruit raising in New York that the *nursery* business, or that of raising young trees, vines, and bushes to sell, is a flourishing industry. One of the principal centers for this business is ROCHESTER.

Other farm products

Among the most important crops of the Northeastern States are potatoes, hay, and the grains, such as wheat, oats, corn, barley, rye, and buckwheat. Far more land is used for these crops than for those already mentioned. However, since the states farther west are even more noted for hay and grain, a description of this kind of farming will be given when these states are studied (pp. 77–79).

FIG. 22. — A forest-covered mountain slope in the New Hampshire mountains, where a large part of the surface is still occupied by forest.

5. Need of food from other places

While a great deal of food is raised in the Northeastern States, there is not nearly enough to feed the people. Therefore much is brought from the more fertile farming states of the Mississippi Valley. Wheat for bread is shipped to the Northeastern States in great quantities; so are meat, sugar, and other common foods.

Lumbering

1. Extent of the forests

In the days of the early settlers, most of this region was covered with forests, and one of the first products sent back to England was lumber. Now the woods have been cleared away from much of the land, but where it is too steep or rocky for farming, large forests still remain.

For instance, there are large tracts of land in northern Maine, New Hampshire (Fig. 22), and Vermont, as well as in parts of the three states south of them that are still covered with timber. Standing on the summit of Mount Katahdin, one sees only a vast wilderness of trees in all directions. The nearest cultivated land is twenty-five miles to the east, while the unbroken forest stretches much farther away to the north and west. The Adirondack Mountains, and the Appalachian Mountains in New York and Pennsylvania are also heavily wooded.

2. Cutting the timber

Winter is the busiest season for cutting timber in these forests, for the swamps, which are numerous, are then frozen over. At that season, also, the snows have covered the bowlders and fallen trees, and have made the surface level enough for sleds, loaded with logs, to be drawn through the woods.

The industry of lumbering is very important, and many men are employed in it. Usually fifty men or more are necessary to a logging camp. With axes in hand, they go through the woods chopping down all the trees that are large and

sound enough for good lumber. The limbs are then chopped off, and the logs are dragged by horses to the banks of the nearest stream (Fig. 23).

FIG. 23. — Lumbermen at work in winter, drawing the logs on sleds to the edge of the stream.

3. Floating the logs to the mills

When the snow melts in the spring, the cutting is over and another busy season begins. The ice on the rivers breaks up, the streams are swollen by the melting snows, and the logs are whirled off downstream in the swift current. Frequently, however, even this flood of water is not sufficient to carry them. In such cases, in order to provide more water, dams are placed across the streams, or at the outlet of lakes. When more water is needed, the dams are opened, and a flood is poured into the stream. In this way immense numbers of logs are floated or "driven" downstream, forming what the lumbermen call a "log drive."

The work of driving the logs is a very exciting one. The logs often run on to rocks and shoals; and, as soon as one log gets caught, others are held back by it. If the "jam" is not speedily removed, the entire stream may become blocked. Such a condition is called a *log jam* (Fig. 24). It is the business of the log drivers to prevent jams by freeing the logs that become thus lodged.

FIG 24. — A log jam in a stream in which the logs are being floated from the forest. The lumbermen are at work trying to start the logs moving again.

Some of the logs are stopped near waterfalls, far upstream, where they are sawed into boards, laths, shingles, etc.; but most of them are carried to sawmills as far down the river as the current will take them.

During the season for cutting, the men go forth early in the morning and work until late in

the evening, eating and sleeping in log cabins (Fig. 25). Their beds are broad shelves of rough boards, covered with boughs from the spruce and balsam trees; and the camp is often so small that they must lie side by side, with scarcely room to turn. There is much exposure, too. The men may suffer from the cold, for it is often necessary to work when the temperature is far below zero.

4. Hardships of the lumberman's life

The work of preventing log jams brings even more exposure, and danger as well, for the workmen must frequently wade into the icy water and ride upon the logs. One may often see a man carried along on a single log, clinging to it by means of sharp spikes in his boots, and balancing himself with a long pole. Now and then he must jump from log to log, as a squirrel springs from tree to tree. The men so employed are often wet from head to foot, and may even be thrown into the water and drowned.

Fig. 25.—Lumbermen and their log cabin in the woods of Maine.

The forests of these states supply much lumber, though far less than formerly. Make a list of articles manufactured out of wood. Forests have another important use: they prevent the rain water from running rapidly off from the land. Where forests have been carelessly destroyed by the lumbermen, or by fire, the streams rise rapidly after every rain, and then quickly decrease in size. Often there is not enough water to run the factories that use the water power.

5. Value of the forest

For these reasons there are *forest reservations* in several of these states in which it is forbidden to cut down the trees, or where only a few of the largest are cut each year. Besides this, some large tracts of woodland, called *game preserves*, are carefully protected by certain citizens, for the sake of the fishing and hunting at the proper season. State laws also protect the game.

Fishing

Fishing is another occupation of much importance, though it employs few men. Along the eastern coast are found cod, halibut, mackerel, herring, shad, bluefish, clams, oysters, and other food fish. At the time of the early settlements, food fish were abundant close by the rocky New England shore; but so many have been caught along the coast, that they are now far less common.

1. Kinds of fish

To-day, in order to catch large quantities of cod, halibut, and mackerel, it is necessary to go far from land, and hundreds of vessels, and thousands of men, are engaged solely in catching fish. Gloucester, in Massachusetts, is the most noted fishing port in the United States; but Boston, Portland, and Provincetown also have an important fish trade. Locate each of these cities.

2. Centers of the fishing industry

FIG. 26. — A Gloucester fishing schooner, just leaving port on a fishing trip.

3. Mackerel

Most of the mackerel are caught in spring and summer. They swim together, on the surface of the ocean, in such numbers, or *schools*, as fishermen say, that they may be easily seen from a distance. The fishermen who cruise about in search of the mackerel, sail in swift, two-masted vessels, called *schooners* (Fig. 26). When they see a "school," they spring into their great seine boats, row over to the fish, drop a large net, or *seine*, into the water, and draw it around the "school." Then the seine is drawn in, forming a pocket and trapping the fish. In this pocket enough fish are sometimes caught to fill hundreds of barrels. Some of the fish are taken to port to be sold fresh, but most are salted. This method of fishing is similar to that which the Disciples of Jesus used in the Sea of Galilee.

Halibut and cod cannot be caught

FIG. 27. — Fishermen drawing up a trawl on the Fishing Banks of Newfoundland. The long line, with shorter ones hanging from it, with hooks on their ends, is lowered to the bottom. After a while it is drawn up and the fish that are on the hooks are taken into the boat.

with a seine, for instead of swimming at the surface, these fish live in deep sea water. They are caught in winter as well as in summer, mainly on the Fishing Banks that lie off the coasts of New England and Newfoundland.

4. Halibut and codfish

(1) *Where caught*

FIG. 26. — One of the marble quarries near Rutland, Vt. The stone is quarried out in the deep pit on the right, and the blocks are hoisted to the surface by the derricks.

Some of the Gloucester fishing vessels, however, go as far as Greenland and Iceland for halibut and codfish.

Halibut are very large, some weighing more than a man, and they are often caught upon single lines. Codfish may be caught in the same manner, though a *trawl* (Fig. 27) is more commonly used for cod than for halibut. The trawl consists of a number of hooks hanging from a single long line, all lowered into the water together and left there for hours. The fish swallow the bait on the hooks, and in this way many are caught at one time.

(2) *Method of catching*

This kind of fishing is dangerous, because the men must venture out in small, flat-bottomed boats, called *dories,* to take the fish off the trawls. While they are busy fishing, a storm may arise, or a heavy fog come up, and prevent their return to the vessel. They are then left in open boats far out upon the ocean. Every year dozens of Gloucester fishermen are lost in this manner.

(3) *Danger of such fishing*

Codfish are sold either fresh or salt; but most of the halibut are sold fresh, though some are smoked. In order to salt, or *cure,* the codfish, they are split open and cleaned, soaked in barrels of brine, and then dried upon the wharf. Very often the bones are removed, the skin stripped off, and the flesh torn into shreds and packed into boxes as boneless cod. Either the salted or boneless cod may be seen in almost any grocery, and much of it comes from Gloucester.

(4) *Method of marketing*

Traps, or *weirs,* also, are set for fish. They are placed along the shore, and many kinds of fish, such as shad, salmon, and bass, swim into them and are then unable to find their way out.

5. Other ocean foods

Another kind of fish that is caught on the New England coast is the herring, which is smoked and canned in large quantities at EASTPORT, Me.

Lobster fishing also is carried on, especially on the coast of Maine. A lobster trap, made of wood and weighted with stone, is lowered to the bottom of the sea, where the lobster lives, crawling around among the rocks and seaweed. A fish-head for bait is inside the trap, and the lobster crawls in to get it; but he is so stupid that he is rarely able to find his way out.

Clams are found along many parts of the New England coast. Some of them live buried in the mud flats which are exposed to view at low tide. At such times boys and men dig these shellfish out, much as a farmer digs potatoes. Another kind of shellfish on the New England coast is the *scallop;* and still another is the *oyster,* which thrives in the shallow water of the bays south of Cape Cod.

Quarrying and mining in these states employ a great number of men. Note how many kinds of mineral products are found here.

Quarrying and mining.

More than half the granite used in the entire country is obtained from the Northeastern States. The greatest quantity comes from Maine, Massachusetts, and Vermont. One of the oldest stone quarries in the country is at QUINCY, near Boston. There are other quarries in and near GLOUCESTER, MASS.; BARRE, VT.; CONCORD, N.H.; and at several points along the coast of Maine.

1. Stones and clay

Marble is found in several places, especially near RUTLAND, VT. Here are quarries of fine *white marble* that is much used for monuments.

Slate, used for roofs of houses, for writing slates, and for other purposes, is found in several of these states, especially in Pennsylvania and Vermont. There is much *sandstone* that is good for building; there is *clay*, for making bricks, drainpipes, flowerpots, and tiles; and there is limestone for the manufacture of lime and of *Portland cement*. Pennsylvania leads all our states in the value of its building stone.

Salt is another very important product of this region. Since this is the one mineral that *everybody* must have, it was fortunate for the early settlers that salt springs were found in central New York. To these springs the wild animals and the Indians had long been in the habit of going for the salt they needed. The white men found the salt springs so valuable that the production of salt soon became an important industry at that point, and it caused the beginning of the city of SYRACUSE.

The salt water of these springs flowed from a great bed of salt that lies underground, beneath a large part of central New York. By boring down through the soil and some layers of rock, the salt bed itself can be reached. Many such borings have been made, and much salt is now obtained through them. New York produces more salt than any other state.

FIG. 29. — A view in the oil fields of Western Pennsylvania. Each of these small towers, or derricks, stands over an oil well. The derricks were used in boring the wells.

Two fuels, oil and natural gas, are found in western New York and Pennsylvania. *Petroleum*, as the oil is generally called, means "rock oil," — a name which suggests its origin.

3. Petroleum and natural gas

The oil and gas have been formed by the decay of remains of animals and plants that lived ages ago when the ocean covered this

region. As they died and fell to the bottom of the sea they were buried beneath sand and clay which have now become hard rock. The oil and gas, which came from the decay of the animals and plants,

(1) *How formed*

FIG. 30. — A large pipe through which petroleum is flowing from the oil wells to the refinery.

entered the crevices between the grains of the sandstones and other rocks. Thus these substances were stored deep down in the earth. Oil resembling petroleum is now manufactured from fish; and gas similar to that now found in the rocks often rises from swampy places, where plants are decaying.

When a hole is bored down to a rock layer where gas is thus stored, the gas rushes to the surface. It is then led away in pipes, often to distant places. Thousands of homes in BUFFALO, PITTSBURG, and other cities are heated with natural gas; and in many factories, too, the gas is used for fuel.

(2) *How obtained from underground*

Borings in which petroleum rises are called *oil wells*. From these the oil sometimes spurts, or gushes out; but it must often be pumped out. Near the oil wells cities have grown up, such as BRADFORD and OIL CITY in Pennsylvania, and OLEAN in New York.

After being taken from the earth, the petroleum is stored in large tanks, and then refined. In its natural state it is a thick, dark yellow or reddish fluid, but in the refinery it is changed so that a large part of it becomes clear, colorless *kerosene oil*.

(3) *Products from the oil*

Benzine, naphtha, and gasoline also are made from petroleum. The thick substances that are left, after the refining, are used in making dyes of various kinds, machine oil, vaseline, and paraffin. The latter is used in many ways; for example, in making chewing gum and candles.

The oil business is mainly in the hands of the Standard Oil Company. From the wells the oil is led to the refineries in pipes (Fig. 30), sometimes hundreds of miles long. This company owns many special tank cars for hauling the kerosene, as well as steamers for shipping it to foreign lands. Watch for one of the tank cars, and describe it.

(4) *Principal company handling oil*

The pioneers knew nothing about either of these substances. For lighting in the early days they used either candles or lamps in which some animal oil, such as whale oil, was burned. Very likely, even your great-grandfather, when he was a boy, did not know what kerosene oil was.

FIG. 31. — Trunks of trees, in the solid rock, standing where they grew when these rocks were being deposited as sediment in the Coal Period.

Another fuel, far more important than either of these, is coal, which is found in great abundance in Pennsylvania.

4. Coal

There is good proof that the coal used in our stoves and furnaces has been

made from plants. Roots of plants may still be seen in the old soil, now changed to rock, that lies beneath the coal beds; and stems of plants, and even trunks of trees (Fig. 31) changed to coal are found in the coal beds. Besides, with a microscope, or at times even with the naked eye, one can see that coal is made of bits of plants pressed closely together. Sometimes the full form of a fern or leaf, called a *fossil*, may be seen (Fig. 32).

(1) *How coal has been formed*

The plants of which the coal is made grew many ages ago in great swamps. When they died, they fell into water, making thick beds of plant remains, like those that are forming in swamps to-day. If it could then have been dug up and dried, it would have made good fuel. Indeed, in Ireland, Norway, and other cool, moist lands, it is now the custom to dig such woody matter out of the swamps and dry it for burning. Such fuel, called *peat*, is much used for cooking and heating in those countries.

These ancient swamps were later covered up by layers of sand, clay, and other substances, now hardened into rock. The plant remains themselves have also been changed by pressure until they have become a kind of rock, or mineral coal. Some of the poorer coals, known as *lignite*, are little more than peat beds partly changed to coal.

(2) *The kinds of coal*

Other beds, having had far more pressure upon them, have been changed to harder coal. One of them is called soft, or *bituminous*, coal. Another, called *anthracite*, has had even greater pressure. It has been so greatly changed that it is as hard as some rocks, and is known as *hard coal*.

About half the coal of the United States comes from Pennsylvania. This state, also, produces both kinds of coal, being one of the very few regions in the world where anthracite is found in abundance. WILKESBARRE and SCRANTON, in eastern Pennsylvania, owe their importance largely to the anthracite mined near them. Great quantities of soft, or bituminous, coal are mined about PITTSBURG. Pennsylvania is the only one of the Northeastern States that has important coal fields.

(3) *The amount and kinds of coal in Pennsylvania*

FIG. 32.—The print of a fern in a rock that was formed during the Coal Period.

In some places the coal is found close to the surface, while in many others it is several hundred feet beneath the surface. Where the coal lies far down in the earth, deep *shafts* must be sunk to reach it. From the sides of such a shaft, *tunnels* (Fig. 33) are dug into the coal beds, and from these the coal is removed. Some of the coal beds are only two or three feet thick, but others are several times as thick as this.

(4) *Method of mining*

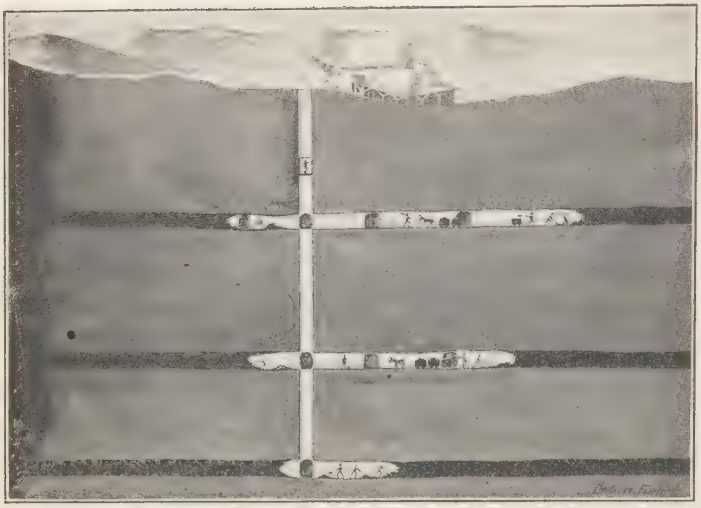

Fig. 33. — A drawing to illustrate how coal is mined. There is a shaft going straight down, then tunnels extend off from it into the different coal beds.

their own light by means of lamps fastened to their caps.

The miners drill holes in the coal beds with drills run by steam or compressed air (Fig. 34), and break the coal out by blasting; the larger lumps are then broken up with picks. After this is done, the coal is placed in cars, drawn to the shaft by mules, or by electricity, and then hoisted to the surface. The mules are kept underground for months, being fed and allowed to sleep in stables cut out of solid coal.

Soft coal is sold in the form in which it reaches the surface; but anthracite must first be sorted into different piles, each containing lumps of a single size. This work is done in great buildings, called *coal breakers*, which stand close by the mouth of the shafts. The coal is hoisted to the top of the breaker, where the larger lumps are broken up. It then passes down through the building and is separated into different sizes by means of sieves and various kinds of machinery.

(5) *How anthracite coal is prepared for market*

Usually there are several beds of coal, with thick layers of rock between, and the shaft extends downward through them all, with tunnels reaching out into each bed (Fig. 33). In a large mine one may travel through miles and miles of tunnels. Since it is very dark so far underground, the tunnels are sometimes lighted by electricity; but the workmen often furnish

Fig. 34. — Miners working far underground in a bituminous coal mine near Pittsburg. The machine in front is drilling a hole in the thick coal seam that forms the wall on the right.

There is much rock mixed with the coal, and this must be picked out. Some of this work is done by machinery; but much of it is done by boys, called *breaker boys*, who sit on low wooden benches, as the coal passes by, watching carefully for pieces of rock. These they pick out and throw away. You can imagine how black the boys become before their day's work is done.

(6) *Uses of coal*

Both the hard and the soft coal are used not only for heating houses and for cooking, but also in making steam to use in running locomotives, steamboats, and the machinery of factories. Much coal is used also in smelting iron and other metals, and in the manufacture of gas for lighting. Coal is, indeed, the most useful of all minerals. Without it our country could not have prospered as it has.

5. Iron ore

(1) *Where found, and why important*

Iron ore is mined in large quantities in Pennsylvania, and also in New Jersey and New York. Thus both the raw material and the fuel for manufacturing it into useful articles are found almost side by side. Both coal and iron are easily sent to all the cities of these states for use in the factories. This is very important, since iron is the most useful of all metals.

(2) *Its appearance; also how formed and mined*

In appearance, iron ore is sometimes a hard, black mineral; sometimes a soft, loose, yellowish or reddish brown earth. It is not *iron* at all, any more than *wheat* is flour; it is only *iron ore*, a mineral out of which, by much work, iron may be made.

FIG. 35. — Coke ovens near Pittsburg. Each of the small doors leads to an oven where the coal is burned and changed to coke.

Like coal, the iron ore in the earth was prepared long ago, though in a very different manner, as follows: Small quantities of iron exist in many minerals and rocks. Indeed, the red and yellow colors of soils, and of some rocks, are due to it. As water slowly works its way through the soil and rocks, it dissolves the iron, much as it would dissolve salt or sugar if those substances were there. Where the conditions have been favorable, the water has brought quantities of the iron to one point, and there deposited it. This has formed beds, or *veins*, of iron ore, and it is these that are now being mined.

Sometimes the veins lie very deep, and the ore must be mined in much the same way as coal is mined (p. 25). Again the veins are so near the surface that the ore is taken out of great open pits, somewhat as dirt is dug out.

Manufacturing

1. Its importance

Manufacturing is an even greater industry in these states than mining. It is, in fact, more extensive here than in any other section of the United States, and is one of the chief reasons why there are so many people in the Northeastern States.

2. Manufacture of iron goods

These advantages, together with so much iron ore, have made the manufacture of iron, and iron goods, one of the leading industries in the Northeastern States.

(1) *How iron is made*

Making iron from iron ore is called *smelting*. In smelting, the ore is mixed with limestone, and also with coke, which is made out of soft coal (Fig. 35), and produces great heat when burning. The three substances are all dumped together into a high, towerlike structure, called a *blast furnace* (Fig. 36). It is so named because a blast of air is forced through it, to produce a strong draft while the coke is burning. The great heat melts the ore and limestone; then the iron, being heaviest, sinks to the bottom of the fiery hot liquid. The limestone, united with those parts of the ore that are not iron, rises to the surface, forming worthless slag, which is drawn off through an opening in the furnace. Through a lower opening, the heavy iron is run off into trenches, made of sand, on a sand floor.

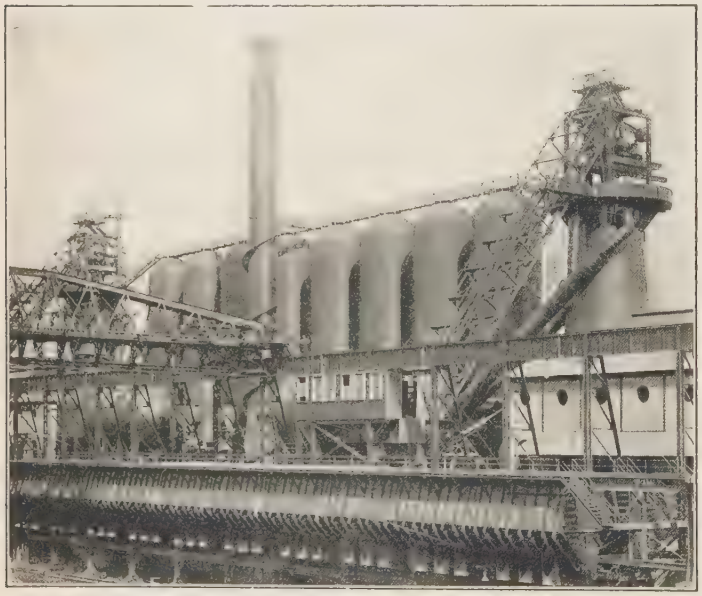

FIG. 36. — A blast furnace in which iron ore is changed to iron.

Not only can the coal from Pennsylvania easily be shipped to all points, to produce steam and electricity, but water power is abundant in many sections. Niagara Falls (Fig. 17), the greatest waterfall on the continent, furnishes water power for extensive manufacturing in Buffalo and elsewhere. Smaller waterfalls are common throughout most of these states, and on that account manufacturing has been greatly favored from the start.

There is one main trench with many side branches, and each of these has still smaller branches, as shown in Figure 37. When the molten iron cools, the little bars of iron, called *pig iron*, are all attached to a larger one. These rough bars, which are small enough to be lifted, are then broken off and shipped away, to be made into thousands of different articles.

Some iron goods, such as stoves and the iron parts of your desk, are nothing more than this pig iron melted and cast, in molds, into the shape that is desired. This is *cast iron*,

which is so brittle that it easily breaks under a heavy blow. Other materials, such as knife blades, boiler plates, rails for railways, and watch springs are made of *steel*. This also is made of pig iron, though not until it has been melted again and greatly hardened and strengthened by an expensive process. *Wrought iron*, a third kind, is used where it is necessary for the metal to be tough and at the same time to bend easily, as in iron wire.

(2) *The kinds of iron made*

Almost every large city in the Northeastern States is to some extent engaged in iron work of one kind or another. Some make iron and steel out of the ore, others manufacture articles out of the iron and steel. For example, in the state of New York, BUFFALO manufactures car wheels, machinery, and many other articles. It has several thousand factories, many of them making iron goods. In NEW YORK CITY, iron and steel products of almost all kinds are made. Iron and steel goods, such as bicycles and machinery, are manufactured in SYRACUSE; stoves are made in ALBANY and TROY; and there are iron foundries in BINGHAMTON, ELMIRA, and SCHENECTADY.

(3) *Centers for iron manufacturing*

In Pennsylvania, PHILADELPHIA manufactures steel ships, cars, and hundreds of other iron products; PITTSBURG, to which ALLEGHENY is now united, makes steel and iron goods of nearly every kind (Fig. 38); and SCRANTON, READING, HARRISBURG, ERIE, ALTOONA, and a score of other places, have furnaces, foundries, and machine shops for iron manufacturing. In New Jersey, JERSEY CITY, NEWARK, CAMDEN, and HOBOKEN manufacture iron goods.

FIG. 37.—This figure shows the sand floor in a blast furnace. Here the white-hot iron is running down a trench near where the men are standing, then into side branches where it cools as pig iron.

Since almost no coal or iron is produced in New England, these two materials must be shipped from other states. Therefore, large, heavy objects, that require much metal and coal are not generally made there. Lighter articles, as jewelry, clocks, needles, cutlery, tools, and firearms, that require a high degree of skill, are the chief articles manufactured from metal in New England.

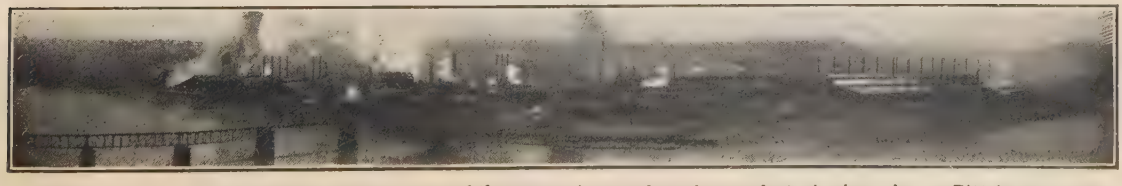

FIG. 38.—Homestead Steel Works, one of the many iron and steel manufactories in and near Pittsburg.

Some of these articles are made partly or wholly of other metals than iron, such as copper, gold, and silver.

WORCESTER, west of Boston, manufactures wire and other iron goods. NEW HAVEN is noted for hardware and firearms. Carriages, sewing machines, and other articles are made at BRIDGEPORT. Firearms, cars, and bicycles are made at SPRINGFIELD, and at HARTFORD, which is situated at the head of steamboat navigation on the Connecticut River. FITCHBURG is also engaged in metal manufacturing.

Near Boston, at WALTHAM, the American Watch Company has an immense factory (Fig. 39), where 3100 watches are made every day. About 4300 persons, more than half of whom are women, are employed in this factory, receiving about $200,000 a month in wages. Great numbers of clocks and watches are made in WATERBURY, and much cutlery at MERIDEN, Conn. Some of the cities where cotton and woolen goods are manufactured, such as FALL RIVER, LOWELL, and NEW BEDFORD, also manufacture goods of iron and other metals.

Manufactories making four other articles from mineral products are especially worthy of note in these states. One of these articles is *glass*, which is made at and near PITTSBURG, where natural gas furnishes cheap fuel. PITTSBURG is the greatest center in the country for the manufacture of plate glass.

3. Manufacture of glass, pottery, brick, and cement

(1) *Glass*

Clay suited to the manufacture of *pottery* is found in a number of places; but much clay for pottery is imported. A high grade of pottery is made at TRENTON, N.J., where this industry has become very important.

(2) *Pottery and bricks*

So many *bricks* are used for building, that brickyards are found in the neighborhood of nearly all cities. Bricks are made of clay. This is first pressed into the brick shape when damp, then dried, and finally baked. In this process some of the grains melt, so that when cooled again, they cling together like stone. The clays near PHILADELPHIA, and the great clay beds of the Hudson Valley, above NEW YORK CITY, supply an abun-

FIG. 39.—The Waltham Watch Factory at night. This is but one of the many large factories of New England.

dance of brick for these and neighboring cities.

(3) *Cement*

Portland *cement* has become of great importance within the last few years. It is made in many places, especially in New Jersey, Pennsylvania, and New York. To make it, limestone is ground fine and mixed with coal dust. The two are then placed in a furnace, where the burning coal dust gives out so much heat that the limestone melts. It comes out of the furnace as a kind of clinker, which is then ground into fine powder. This cement has the valuable property of becoming hard like rock, or *setting*, when water is added. It is used for sidewalks, for buildings, dams, bridges, and many other purposes, taking the place of wood, stone, and iron.

4. Textile manufacturing

(1) *Extent and variety of cotton and woolen manufacturing*

There are about 400 cotton mills in New England alone, making such articles as sheets, towels, stockings, underwear, thread, string, handkerchiefs, and gingham and calico dress goods. As many as 1200 persons may be employed in a single mill, perhaps three quarters of the number being women. One of these mills may use from 60,000 to 70,000 pounds of cotton per day.

(2) *Method of cotton manufacture*

Most of the cotton used grows in our warm Southern States. It is sent to the factories in bales, each weighing about 500 pounds, and is made into cloth in the following manner: First, the dirt, small sticks, and other foreign matter are removed. Then the cotton fibers, of various lengths, are combed out straight and well mixed with one another. After that they are pressed into thin, gauze-like sheets. These are gradually drawn out and twisted into threads, and then wound upon spindles and taken to the *looms* for weaving. All this work is done by machinery. The cotton cloth is made by machinery which weaves the threads together. In an ordinary piece of calico there may be as many as 1200 threads, side by side, and others crossing them. Stripes and other patterns are made by coloring the threads differently, and then, before the weaving begins, carefully arranging them according to some design.

The manufacture of woolen goods is another very important industry in New England.

(3) *Method of wool manufacture*

After being sheared from the sheep, the wool is washed and freed from burs, sticks, and dirt. It is then untangled and combed out straight, after which it is twisted into yarn, much as cotton is twisted into thread. The yarn is woven into cloth for men's suits and overcoats, and also for cloaks, skirts, underwear, blankets, stockings, carpets, and dozens of other articles. Most, if not all, of the garments that you are wearing are made either of wool or of cotton, or of the two mixed together.

(4) *Chief cities engaged in textile manufacture*

The following cities are engaged extensively in the manufacture of either cotton or woolen cloth, or both; in Maine, BIDDEFORD, LEWISTON, AUBURN, and AUGUSTA; in New Hampshire, MANCHESTER, NASHUA, and DOVER; in Massachusetts, LOWELL and LAWRENCE on the Merrimac River; PITTSFIELD in western Massachusetts, and FALL RIVER, NEW BEDFORD, and TAUNTON in the southern part; in Rhode Island, PAWTUCKET, WOONSOCKET, and PROVIDENCE which is the second city in size in New England. One of the largest cotton factories in the world is at MANCHESTER, N.H.

In New York, New Jersey, and Pennsylvania there is also much manufacture of cotton and woolen goods. For in-

stance, YONKERS in New York is noted for its manufacture of carpets and hats; NEW YORK CITY and PHILADELPHIA for clothing; PHILADELPHIA for carpets; TROY for collars and cuffs; UTICA for cotton goods; and JAMESTOWN for plush goods. Locate each of these cities on the map.

Boot and shoe making is carried on in a number of cities, though the most important are LYNN, HAVERHILL, and BROCKTON in Massachusetts, and BINGHAMTON and ROCHESTER in New York. Locate these cities. Besides boots and shoes, leather is made into many other articles, such as bookbindings, harnesses, pocketbooks, and bicycle saddles. Can you name articles made of leather?

5. Leather manufacturing

(1) [illegible]

FIG. 40. — Workmen in a shoe factory in Lynn.

Leather is made from the hides of animals, including cattle, sheep, goats, horses, and hogs. After the hair is removed, the hides are taken to *tanneries*, where they are soaked in tannic acid to make them wear well.

(2) *How leather is prepared*

Some of the tanneries are situated near forests, where there are many hemlock or oak trees whose bark produces the tannic acid. Others, like those in and about SALEM, Mass., are far away from the forests. To these, both the hides and the bark must be brought a long distance. In other tanneries chemicals are used in place of the tannic acid from hemlock or oak bark. In a single tannery near Boston, where sheepskins are tanned, from 30,000 to 40,000 skins are prepared each week.

After being tanned, the leather is taken to the shoe factories (Fig. 40) and cut up, one machine cutting out soles of a certain size, a second tops, a third tongues, etc.; these parts are then sewed or nailed together, and the shoes are soon finished. As in the case of cotton and woolen manufacturing, nearly all the work is done by machinery, each person caring for one or more machines, and performing the same simple task day after day.

(3) *How boots and shoes are made*

Every city in these states is engaged in the manufacture of lumber, or of other materials for building, or for furniture.

6. Manufactures from the forests

BANGOR in Maine is especially noted for its manufacture of lumber. Logs from the forest are easily floated down the Penobscot River to Bangor; and here they are cut up into lumber, which ocean vessels carry to other points. The same is true of PORTLAND. On the wharves of this city are quantities of boards ready to be shipped away, to be made into boxes, barrels, doors, and

(1) *Chief centers for such manufactures*

hundreds of other articles. WATERVILLE, AUGUSTA, and BATH, in Maine; WILLIAMSPORT, Penn., and WATERTOWN, N.Y., are engaged extensively in manufacturing articles of wood.

Another important use of the forests is in making paper, for much of the paper commonly seen, such as newspaper and wrapping paper, is now made of wood.

(2) *Paper*

Short logs, after having the bark removed, are placed in a steel frame and forced against an enormous grindstone. The *wood pulp* thus ground off is carried away by water, run through a sieve, deposited on a wide belt, and pressed into thin sheets between rollers. When dry, it is paper. Wood pulp is made also by the use of chemicals. We do not often think, when reading the news or wrapping a package, that the paper in our hands may once have been part of a live tree, perhaps in the woods of Maine.

FIG. 41.—Falls in the Genesee River at Rochester, used for power in the flour mills and other factories at Rochester.

Paper mills are found at BANGOR, WATERVILLE, and a number of smaller places in Maine; and at WATERTOWN and other points in New York. However, HOLYOKE, the greatest paper-making city in New England, is situated not in the forest region, but in the midst of busy cities in Massachusetts. There the pulp is generally made of rags, which produce a finer grade of paper than wood. The neighboring cities furnish the necessary rags.

The forest trees supply other valuable products besides lumber and wood pulp. One of these is *tannic acid*, used in tanning leather; it is made from the bark of the hemlock and other trees. Another product is maple sirup and maple sugar. Among the trees in the forests of these states is the *sugar maple*. Its sap, unlike that of most trees, is sweet; and if a hole is bored through the bark in early spring, when the sap is moving rapidly through the tree, it will ooze forth as a watery liquid. This is then boiled to drive off some of the water, thus making maple sirup and maple sugar.

(3) *Tannic acid; maple sugar and sirup*

Although these are the principal kinds of manufacturing carried on in the Northeastern States, there are many others that have not been mentioned. For instance, automobiles, farm machinery, wagons, rubber goods, silk goods, chocolate, and many other articles are manufactured in large quantities in these states. One very important industry is grinding grain into flour, which is done in scores of places. ROCHESTER, N.Y., for example, has many flour mills, as well as other factories, run by the water power furnished by the falls of the Genesee River (Fig. 41).

7. **Other kinds of manufacturing**

8. Great changes in methods of manufacture

(1) *The old way of manufacturing*

The way in which manufacturing is now carried on is very different from the old way. In the olden days, all the wool for cloth, for instance, was obtained from sheep that were raised near by. It was brought to the house, and was first made into yarn by means of a spinning wheel (Fig. 42). Then it was woven into cloth, and this cloth was made into garments by the mother and daughters of the household, during the long winter evenings. This work was done by simple machines run by hand or by foot power. It was then the custom for everybody to wear "homespun," or cloth made at home.

Fig. 42. — An old-fashioned spinning wheel.

Likewise, when the men were not too busy with farm work, they often made shoes for their families. Or some one traveled from house to house, making boots and shoes. Pieces of leather for the uppers were cut from hides of animals raised near by, and sewed together by hand; then the thick soles were tacked on, again by hand. Most kinds of work, indeed, were done by hand.

(2) *The present way*

Now, most of the wool that is used is raised far away, perhaps on the sheep ranches of the Western States, and is brought to the factories in boats, or in freight trains. There it is put into machines and quickly spun into long threads of yarn that are wound upon spools by machinery. This yarn is then woven into cloth, also by machinery.

To-day, also, most of the hides for use in making shoes are brought long distances, often from the cattle ranches of the West. The hides are first tanned at a tannery, and then the leather is cut into proper shapes by machines. After that the pieces are sewed, or nailed, together by machinery.

Everywhere machinery has taken the place of hand work. As now done, the work is carried on, not in the home, but in factories; and hundreds, or even thousands, of persons are often employed in a single factory. All these men and women, and boys and girls, are kept busy from morning till night running the machines. It is an interesting sight to watch the throngs of workers pour out of one of these buildings at the close of the day (Fig. 43).

In former days it took a long time to make a piece of cloth, or a pair of shoes, that can now be made in a few minutes. One of the

most striking changes, though, is in the *kind* of work that each person does; for now one person usually works on only a very small part of the article manufactured. He may spend all of his time, day after day, tending a machine that merely cuts out soles for shoes, or that sews certain pieces of leather together.

(3) *The variety of work*

How different it was when a man plowed ground one day, acted as a carpenter in building a shed on a second day, and made shoes a third! Were former days really worse than the present, or better?

All this manufacturing calls for great quantities of food, and for an immense amount of raw materials, such as coal, metal, cotton, wool, leather, and lumber. The wants of the twenty-six million inhabitants of the Northeastern States naturally cause extensive trade in such materials and the articles made from them. It is plain, then, that the transportation of goods, as well as buying and selling, must be very important occupations in these states. In addition, there are many millions of persons living west of these states who have goods that they wish to send across the Atlantic Ocean to foreign lands; and the foreign countries, in turn, have goods to send to us. A large portion of this trade is carried on in the seaports of the Northeastern States.

Commerce

1. Why especially important in these states

This *foreign commerce* alone keeps thousands of men and women busy all the time, mainly in the large cities on the coast, such as New York, Philadelphia, and Boston.

Good harbors along the coast are among the chief aids to such commerce. Not only must many things be received from foreign countries, and many articles be shipped abroad, but many articles can best be sent from city to city in these states by boat, along the coast.

2. Harbors

If you examine the map, you will see that this coast is very irregular, with many bays, both large and small. These form excellent harbors along the coast from Maine to Pennsylvania. Draw this coast line, showing the chief bays and capes. Write their names on your drawing.

FIG. 43. — Men and women leaving the factory at the close of the day. Notice how many people there are employed in this one factory.

The rivers also are of great value in such commerce. Name and trace the chief rivers in New England. On the map find the Hudson, the principal river in New York; the Susquehanna, the principal one in Pennsylvania; and the Delaware River.

3. Rivers and canals

Most of these rivers are too shallow for large boats to go far upstream; and in some cases travel by boat is prevented by rapids and falls. The Hudson River

FIG. 44. — Delaware Water Gap. Here the Delaware River cuts through one of the Appalachian Mountain ridges. The river is not navigable, but railroads follow it on both banks.

is the one notable exception; for large steamboats can go up the Hudson as far as the mouth of the Mohawk River (Fig. 45).

The wide mouths of these rivers make excellent harbors, as is proven by the large cities there. Name and locate some of these cities.

The need of more waterways into the interior led very early to the digging of canals. Several have been dug, the longest and most important of which is the *Erie Canal* (Fig. 51), extending from the Hudson River, near Troy and Albany, to Buffalo on Lake Erie. Measure its length. This canal is especially important, because it connects the Great Lakes with the ocean, by way of the Hudson River. On that account it has been a great highway of commerce. Name several cities along its course.

About the time the Erie Canal was finished the locomotive was invented, and railroads began to be built. After that, there was less pressing need for more canals, since railroads could take their place.

4. Railroads

Railroads run from north to south through these states; but most of the great railroads run from the coast westward, toward the interior of the country. The Appalachian Mountains have been a great hindrance in building them. Why? Yet several fine roads now cross these mountains. One of the first was the New York Central, running from New York City to Buffalo. It follows the Hudson River to Albany, then takes the same course westward as the Erie Canal does. All the important cities of these states are now connected by rail.

FIG. 45. — The broad and deep Hudson River as seen from West Point.

FIG. 46. — The first railway train which ran out of Albany.

Great centers of population

1. New York City and vicinity

(1) *Population near New York harbor*

The greatest of all the cities of the United States is NEW YORK, which contains more than four million inhabitants, and is second only to London among the great cities of the world. There are several other large cities near by, the largest being NEWARK, JERSEY CITY, PATERSON, ELIZABETH, and HOBOKEN (Fig. 55), all west of the Hudson River in New Jersey. Although in another state, these cities are so closely related to New York in business that they may almost be considered a part of New York City; so also may YONKERS, on the Hudson, just above that city. Before it became a part of New York, the city of BROOKLYN, on Long Island, was itself fourth among the cities of the country. More than six million persons, or one fifteenth of all the inhabitants of the United States, live within twenty miles of New York harbor.

(2) *Reasons for this vast population*

It is, *first of all*, the great convenience for shipping that has caused so great a number of people to collect at this point. Not only can goods easily be sent far inland by water and by rail, as already explained, but they can also be carried on the ocean to any port in the world. The harbor is deep enough for the largest vessels, and large enough to hold all that come. More than half of all the foreign trade of the United States is carried on through this port, which is the leading shipping point in the New World.

The *second* reason for the vast population here is the fact that this is the greatest manufacturing center in the New World.

FIG. 47. — The Empire State Express, one of the trains of the present day on the New York Central Railroad. This picture was taken while the train was running at a speed of 90 miles an hour.

Nearly every manufactured article that men need is made in or near New York, but one of the chief industries is the

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FIG. 48. — A view of lower New York, showing the lofty buildings, or "sky scrapers."

manufacture of clothing. Cotton and woolen goods are sent here from the factories of New England, and other sections, to be made into such articles as women's gowns, men's suits, and undercloth-ing. Large buildings, in which hundreds of men and women are employed, are given up to this work alone.

Iron and coal are so near that the manufacture of iron goods is another great industry. The refining of petroleum is a third, the oil being led, in pipes, from the oil fields of western Pennsylvania to refineries in New Jersey, near New York. The refining of sugar is another immense business in New York, Jersey City, and Brooklyn; and silk manufacture is carried on extensively at PATERSON.

FIG. 49. — The Flatiron building, built in this shape because it occupies the corner where two streets come together. Stores and offices occupy every floor in this tall building.

Merchants from all parts of the United States come to New York to buy goods. The business of selling goods to merchants, to be sold again, called the *wholesale trade*, is a

third reason why so many people have collected around New York harbor. A large section in the southern part of the city is given up almost entirely to the wholesale trade. Since the land is very expensive, as much use as possible is made of every bit of it. For that reason the buildings are high (Fig. 48). Many of the stores and office buildings are twenty or thirty, and some forty stories high. Goods manufactured in the city, together with others brought from all parts of the world, are collected in this part of New York. These are sold in quantities, or by wholesale, to retail merchants both of New York and of other cities and towns, who then sell them to customers in their own stores.

(3) *Life in the great city*

The difference between life in New York City and upon a farm is striking. On some of the streets in the city scarcely anything but stores can be seen for ten or twelve miles. Many of these stores are small, but some occupy enormous buildings, and employ many hundreds of clerks.

Families whose homes are in the city do not usually occupy a whole house, but often hundreds of people live in one building. These structures, called *apartment houses*, are usually from six to eight stories high, and some even from fifteen to twenty. They are so arranged that one family occupies only a small part of one floor, called an *apartment*. Other families live above and below, as well as on each side, being separated by only a few inches of brick or boards. Since land is so valuable there is usually neither front yard nor back yard.

In the poorer sections of the city the people are even more densely crowded. Some of the children have never seen the country, and they have seen scarcely any birds, trees, or grass, except possibly in one of the city parks. In these crowded sections there are many foreigners from all nations of the earth.

To escape such a crowded city life, hundreds of thousands of men live in suburban towns, or country homes, from ten to forty miles from their places of business. Every day they spend from one to three hours traveling back and forth. Some ride upon *elevated railways* built in the street, and supported by iron columns. Others go by train in one of the *subways*, which extend for miles underground, and even cross under the rivers to Brooklyn, Jersey City, and Hoboken.

How different all this is from the country, where perhaps only two or three houses may be seen at a time! Where sunlight and fresh air may enter one's home from all sides of the building!

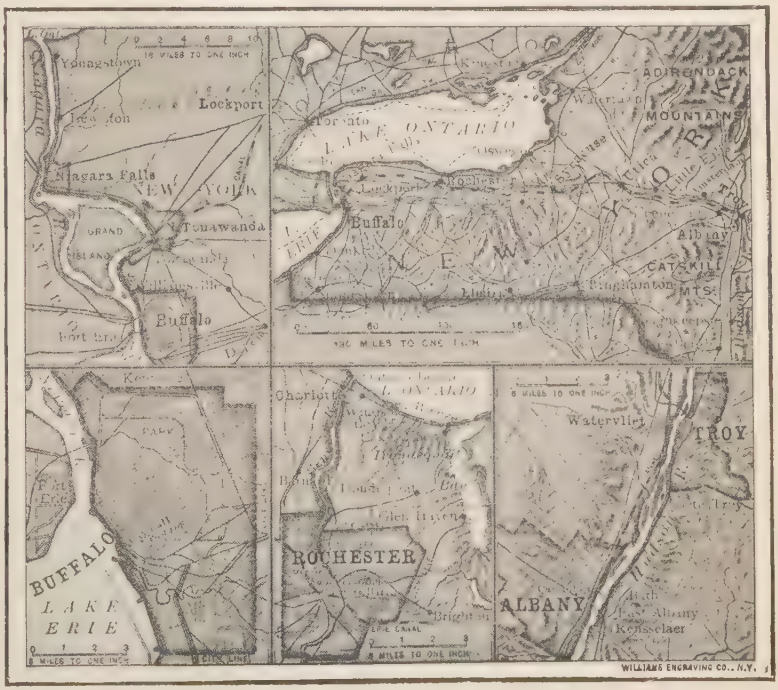

FIG. 50.—Map showing location of Buffalo, Rochester, and Albany.

FIG. 51.—The Erie Canal and other water routes of New York and vicinity.

Where there is plenty of room to play, and where there are green grass, large trees, and singing birds in the yard! No wonder the people living in great cities are anxious to visit the country, the mountains, the lakes, and the seashore during the summer season.

2. Buffalo and cities along the Erie Canal

Most of the other large cities in the State of New York are found along the water and rail routes from New York City to Lake Erie (Fig. 51). The most important of these is BUFFALO (Fig. 50), on Lake Erie, at the western end of the Erie Canal. Before the canal was built, Buffalo was only a village. But both New York and Buffalo have had a very rapid growth since 1825, when the canal was finished. Name other cities along the Erie Canal route (Fig. 51), and recall what has been said about them.

Since the canal (Fig. 184) is only seventy feet wide, and seven feet deep, all freight coming in lake steamers from the West must be unloaded at or near Buffalo, and placed in *canal boats* before it can be carried on the canal. These clumsy looking boats are made with broad, flat bottoms, in order that they may carry heavy loads without sinking too deep into the water. They are drawn by horses or mules that walk along the *towpath* at the side. The Erie Canal is now being enlarged to a barge canal.

Buffalo is a great railway center, as well as an important lake port. Here quantities of grain, flour, lumber, and iron, brought by lake vessels from the West, are transferred to railway cars or to canal

FIG. 52.—Locks in the Erie Canal. The canal boats are drawn into one of these spaces, which is then filled with water, raising the boat to a higher level. This is then repeated until the boat is raised to the level of the canal above the locks. Or, if a boat is going the other way, it is lowered in the locks by letting the water run out.

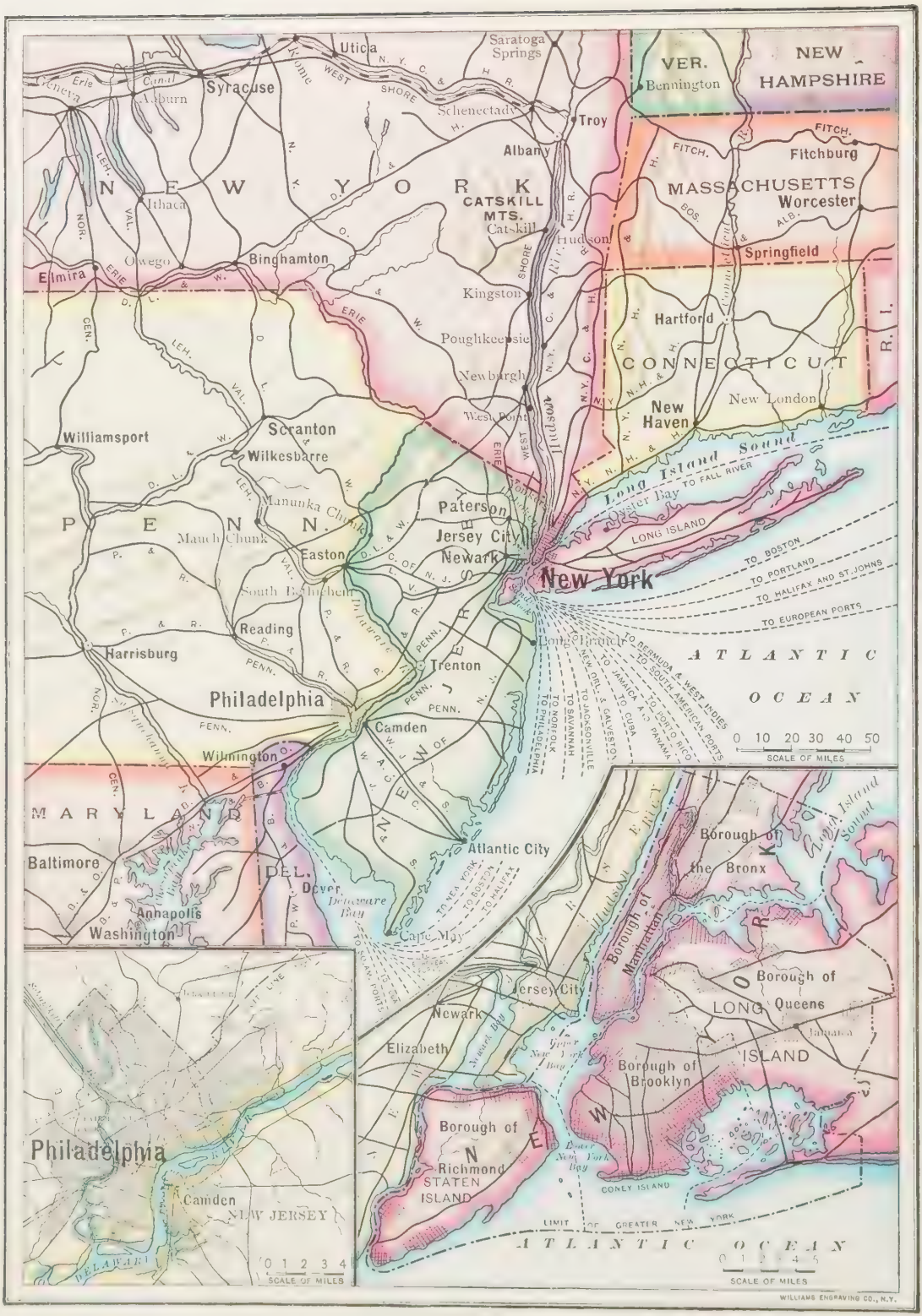
NEW YORK
PENN.
MARYLAND
DEL.
NEW JERSEY
VER.
NEW HAMPSHIRE
MASSACHUSETTS
CONNECTICUT
R. I.
CATSKILL MTS.
Utica
Syracuse
Saratoga Springs
Schenectady
Troy
Albany
Bennington
Fitchburg
Worcester
Springfield
Hartford
New Haven
New London
Ithaca
Owego
Binghamton
Elmira
Catskill
Hudson
Kingston
Poughkeepsie
Newburgh
West Point
Williamsport
Scranton
Wilkesbarre
Manunka Chunk
Mauch Chunk
Easton
South Bethlehem
Reading
Harrisburg
Paterson
Jersey City
Newark
New York
Long Branch
Trenton
Philadelphia
Camden
Wilmington
Atlantic City
Baltimore
Annapolis
Washington
Dover
Cape May
Delaware Bay
Long Island Sound
Oyster Bay
LONG ISLAND
TO FALL RIVER
TO BOSTON
TO PORTLAND
TO HALIFAX AND ST. JOHNS
TO EUROPEAN PORTS
TO BERMUDA & WEST INDIES
TO SOUTH AMERICAN PORTS
TO PORTO RICO
TO JAMAICA AND PANAMA
TO CUBA
TO NEW ORL. & GALVESTON
TO JACKSONVILLE
TO SAVANNAH
TO NORFOLK
TO PHILADELPHIA
TO NEW YORK
TO BOSTON
TO HALIFAX
TO EUROPEAN PORTS
ATLANTIC OCEAN
0 10 20 30 40 50
SCALE OF MILES
Borough of the Bronx
Borough of Manhattan
Borough of Queens
LONG ISLAND
Borough of Brooklyn
Borough of Richmond
STATEN ISLAND
Jersey City
Newark
Elizabeth
Upper New York Bay
Lower New York Bay
CONEY ISLAND
LIMIT OF GREATER NEW YORK
ATLANTIC OCEAN
0 1 2 3 4 5
SCALE OF MILES
Philadelphia
Camden
NEW JERSEY
DELAWARE
0 1 2 3 4
SCALE OF MILES
WILLIAMS ENGRAVING CO., N.Y.

FIG. 55.

boats; and coal and manufactured goods are shipped westward. There is also much manufacturing of many kinds (p. 29).

Niagara Falls (Fig. 17), which are about twenty miles from Buffalo, supply electric power for use in lighting the city and in running street cars and factories. Much use is made of this electric power near the Falls, as at the city of NIAGARA FALLS, which has become an important manufacturing center. Power from Niagara is used also for running electric cars between Buffalo and Niagara Falls and between Buffalo and Lockport. This electric power is carried by wire even as far east as Syracuse. How far is that?

Rank of New York State

The State of New York ranks first among the states of the Union in population, manufactures, commerce, and wealth, and is often called the *Empire State.* The great size of New York City, with its manufacturing, commerce, and wealth, is the main reason for the high rank of the State.

3. Philadelphia and neighboring cities

The greatest of all the cities southwest of New York is PHILADELPHIA (Fig. 55), which has over 1,500,000 inhabitants, and ranks third among the cities of the United States. As in the case of New York, other important cities are near by, the largest being TRENTON and CAMDEN, in New Jersey; CHESTER

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FIG. 53. — The Battleship *Iowa* going at full speed. This was built in the shipyards below Philadelphia.

FIG. 54. — Independence Hall, in Philadelphia.

and NORRISTOWN, in Pennsylvania; and WILMINGTON, in Delaware.

FIG. 56.—Boston and vicinity. Also small maps of Providence, Portland, and Worcester. Notice the steamship and railway lines converging at Boston. Also the number of cities near Boston.

Lines of steamships (Fig. 55) run from Philadelphia to the leading seaports of the United States and foreign countries. Because of its nearness to the coal fields, Philadelphia has become a great shipping point for coal. The coal and iron have made possible the manufacture of cars, heavy machinery, and steel ships (Fig. 53) at PHILADELPHIA and WILMINGTON. Philadelphia is a center for manufacturing textiles, especially woolen goods; there is much manufacturing of clothing; and in the manufacture of carpets this is the most important city in the country.

Philadelphia is called the *Quaker City*, because it was founded by William Penn and other Quakers, many of whose descendants still live there. It was the home of Benjamin Franklin; and at one time, before Washington was built, it was the capital of the United States. Independence Hall, in which the Declaration of Independence was signed, and in which the Constitution of the United States was written, is still standing (Fig. 54).

4. Other cities in Pennsylvania

Pennsylvania has the city of ERIE, on Lake Erie, as New York has Buffalo; but, while Erie is an important shipping and manufacturing center, it is much smaller than Buffalo.

The city in Pennsylvania that ranks next to Philadelphia is PITTSBURG, the seventh city in size in the United States. Pittsburg is located at the point where the Allegheny and Monongahela rivers unite to form the Ohio River, and therefore has extensive water connections. It is a center for the manufacture of iron and steel, and of articles made from them. Indeed, for such work it is the greatest center in the country.

abroad. In return, ships from foreign countries bring such articles as coffee, tea, chocolate, rubber, wool, hides, and bananas, which are needed in New England.

Boston and its vicinity have been important from the earliest days of our history. There, at the beginning of the Revolutionary War, occurred the Boston Tea Party, Paul Revere's Ride, and the Battle of Bunker Hill. The vicinity of Boston is also noted for its eminent

FIG. 57. — A part of Boston, with its fine harbor beyond.

The most important of the New England cities is BOSTON, the fifth city in size in the United States. It is a great manufacturing center, being engaged in most of the industries already named, and especially in making clothing. Its size is chiefly due to its excellent harbor (Fig. 57) and its central location.

5. Boston

The port of Boston is second only to that of New York in importance in the United States. Great quantities of raw materials are received here, to be sent to the factories of New England; and the finished goods are shipped over all the world. Much grain and meat reach Boston from the West to be distributed among smaller cities, or to be shipped

men. Harvard College, the oldest college in the United States, was founded in 1636 at CAMBRIDGE, three miles from Boston. Longfellow, Lowell, Holmes, and Agassiz were professors at Harvard; and Hawthorne, Emerson, Thoreau, and Whittier lived not far from Boston.

In the vicinity of Boston are many manufacturing cities and towns which also serve as places of residence for the business men of Boston. Among these the largest are CAMBRIDGE and SOMERVILLE (Fig. 56), which have important industries of meat packing, machine manufacturing, and printing. Others are CHELSEA and MALDEN, each engaged in manufacturing rubber goods and other articles. Still farther away are LYNN and SALEM, both important cities.

6. Cities near Boston

Fig. 58. — The Washington elm at Cambridge. It was under this tree that Washington first took command of the American Army in July, 1775.

dwell in the cities; and during most of the year they are closely confined in noisy factories, or in offices and stores. To these, the wooded mountains, the silvery lakes, the rivers, with their falls and rapids, the green valleys, and the sandy or rocky seacoast offer great attractions; and every summer tens of thousands run away from town for a week or more, to enjoy their vacations at such places.

Summer resorts

1. Why a need of vacations

Many go to the green slopes and woods of the Adirondacks or the Catskills, in New York; or to the Berkshire Hills of Massachusetts; or to the White Mountains of New Hampshire (Fig. 59); or to the mountains in Pennsylvania.

2. Where the people spend their vacations

7. Other large cities of New England

Portland (Fig. 56), the largest city in Maine, has an excellent harbor. New Haven, the largest city in Connecticut, and Providence (Fig. 56), the largest in Rhode Island, are both on the seacoast.

The seacoast of New Hampshire is very small, and the largest city, Manchester, lies inland near some falls in the Merrimac River; but on the coast is the important city of Portsmouth. Vermont has *no* seacoast. Its largest city, Burlington, is a lake port on Lake Champlain.

There is so much manufacturing and commerce in the Northeastern States that great numbers of people

Fig. 59. — The railway up the slopes of Mount Washington, on which thousands of summer visitors are taken to the top of the mountain every summer.

Here they can enjoy the scenery and the mountain life to their hearts' content. Others plunge into the woods of Maine or northern New Hampshire, to hunt and fish, or to canoe upon the streams and lakes; and still others settle down at farmhouses, to enjoy the quiet of the country.

Many others visit the seashore to escape the heat and to bathe in the salt water, or to sail and row. So many go there, that a large part of the coast is dotted with summer cottages and hotels. Indeed, people come here from all parts of the United States. Thousands visit Atlantic City and Long Branch on the New Jersey coast. Nantucket Island and Martha's Vineyard are similar resorts farther north; while just west of them, on Narragansett Bay, is NEWPORT, noted for its many magnificent summer homes.

Along the coast for many miles north and south of Boston there are noted summer resorts; and the especially cool summers on the coast of Maine also attract great numbers of people.

Review Questions

1. What can you say about the area of the Northeastern States? 2. Describe their surface. 3. Name and locate the principal mountainous regions. 4. Describe the coast line. 5. Explain what has made it so irregular. 6. Describe the climate in the north, with some of the reasons. 7. In the south. 8. What can you say about the population of these states? 9. Why is the population so great? 10. Why is the farming not especially important? 11. Explain why the farms are usually small, and much used for truck farming. 12. Why is there much dairying and raising of animals? 13. Locate some of the more fertile sections and name their products. 14. Name other very important farm products. 15. What can you say about the supply of food? 16. Locate the forests. 17. Tell how the lumbering industry is carried on. 18. What about the hardships of the lumberman's life? 19. State the value of the forests. 20. What kinds of fish are caught in this region? 21. Name and locate the centers of the fishing industry. 22. Tell about the mackerel fishing. 23. Fishing for halibut and cod. 24. Other ocean foods. 25. About the stone and clay. 26. About the salt industry. 27. About the production of petroleum and gas. 28. How has coal been formed? 29. What is the origin of the different kinds of coal? 30. Tell about the amounts and kinds of coal in Pennsylvania. 31. Describe the method of mining coal. 32. How is anthracite prepared for market? 33. State the uses of coal. 34. Where is iron ore found? Tell about its importance. 35. Its appearance; also how formed, and mined. 36. Why is manufacturing especially important in these states? 37. How is iron made? 38. Name the kinds of iron. 39. Locate the principal centers for work in metal, and name the articles made. 40. Tell about the manufacture of glass. 41. Pottery and brick. 42. Cement. 43. Give some idea of the extent and variety of the cotton and woolen manufacture. 44. Describe the method of cotton manufacturing. 45. Of woolen manufacture. 46. Name and locate the chief cities engaged in textile manufacture. 47. What cities are engaged in leather manufacture, and what are some of the articles made? 48. How is leather prepared? 49. Describe the method of making boots and shoes. 50. Tell about manufactures from the forest. 51. Name other prominent kinds of manufacturing in these states. 52. Tell about changes that have taken place in methods of manufacturing. 53. Why is commerce especially important in these states? 54. What about the harbors? 55. The rivers and canals? 56. The railroads? 57. Name and locate several cities very near New York. What is the population in and near New York? 58. Give reasons for so vast a population. 59. Describe life in the great city. 60. State some facts about Buffalo, and cities along the Erie Canal. 61. What can you say about the rank of New York State? 62. Tell about Philadelphia and neighboring cities. 63. Other cities in Pennsylvania. 64. Boston. 65. Cities near Boston. 66. Other large cities. 67. Explain the special need of vacations for people living in great cities. 68. Where and how do the people in these states spend them?

Review Questions by States

Maine (Me.). 1. Draw the coast line of Maine. 2. Why is it so irregular? 3. Find the principal rivers. 4. What cities are situated on each? 5. Should you expect much fishing along the coast? Why? 6. What reasons can you give why so many people resort to the Maine coast and woods in summer? 7. Describe lumbering in Maine. 8. Which is the largest city? How does it compare in size with Boston and Providence? (See Appendix at end of book.) 9. What other cities in Maine are mentioned in the text? Find them on the map. 10. Draw an outline map of Maine, locating the principal rivers and lakes, the capital, and other leading cities. Do the same for each of the other states as you study about it.

New Hampshire (N.H.). 11. What large lakes are found in this state? What river? 12. Name the cities on it. 13. For what are they important? 14. Why are there not more cities in northern New Hampshire? 15. What industry should you expect there? 16. Locate the White Mountains. 17. Where should you expect to find most farming? 18. How does the largest city in the state compare in size with Portland?

Vermont (Vt.). 19. What large lake forms a part of the western boundary? Into what waters does it empty? 20. What river flows along the eastern boundary? Through what states does it flow? 21. What is the name of the mountains? 22. Lumbering is carried on, as in Maine; into what waters must the lumber be floated? 23. What other Vermont industries are mentioned in the text? 24. There is also farming in the fertile valleys, and manufacturing, as at Brattleboro. Find Brattleboro. 25. Compare the size of the largest city with that of Manchester, N.H.

Massachusetts (Mass.). 26. Compare Massachusetts with Vermont and Maine in area; in population. (See Appendix.) 27. Name the large cities near Boston (Fig. 56). 28. Find the principal cities mentioned in the text, and tell where each is located. 29. For what is each important? 30. What advantages do you see in the location of each? 31. Name several seaports; several manufacturing cities. 32. Where is the mountainous portion of the state? 33. What effect should you expect the mountains to have upon agriculture? 34. State as clearly as you can the reasons why Boston has grown to be a large city. 35. Of what importance is Boston to the cities near by? 36. Of what importance are they to Boston?

Rhode Island (R.I.). 37. Compare this state with Massachusetts and Maine in area. It is the smallest state in the Union. 38. What is the name of the bay in this state? What cities are located on it? 39. What large city is in Rhode Island? How is it important? 40. Compare its size with that of Boston and Portland. 41. Should you expect much lumbering in Rhode Island? Why? 42. What kind of farming? Why?

Connecticut (Conn. or Ct.). 43. Where are the mountains in this state? 44. Locate each of the cities mentioned in the text. 45. Tell how each is important. 46. The farms of Connecticut average better than those of Maine. Why? 47. There is little lumbering in the state. Why? 48. Compare the size of New Haven with that of Boston and Portland.

New York (N.Y.). 49. Where are the mountains? 50. What are their names? 51. Why are forests extensive here? Why is there little agriculture among the mountains? 52. What about the surface features of the rest of the state? 53. What about the extent of agriculture? 54. Tell about the dairying. 55. What fruits are important in New York, and where are they raised? 56. What waters form parts of the boundary of the state? 57. Into what rivers do the lakes empty? 58. What rivers drain New York? 59. State clearly the importance of the Erie Canal. 60. Which cities mentioned in the text are on the canal? Which are on the Hudson? 61. Compare New York in size with all of New England.

New Jersey (N.J.). 62. Why should peaches and grapes grow better in New Jersey than in New England? 63. Name and locate each of the cities mentioned in the text. 64. For what is each important? 65. In what ways are some of the largest cities dependent upon the products of Pennsylvania? 66. What cities in New Jersey are situated on or very close to New York Bay?

Pennsylvania (Pa. or Penn.). 67. Where would you look for the best farm land? 68. The principal forests? 69. The leading coal mines? 70. Where are the principal cities? Why located where they are? 71. Why is manufacturing so important in this state? 72. What kind of manufacturing is especially important?

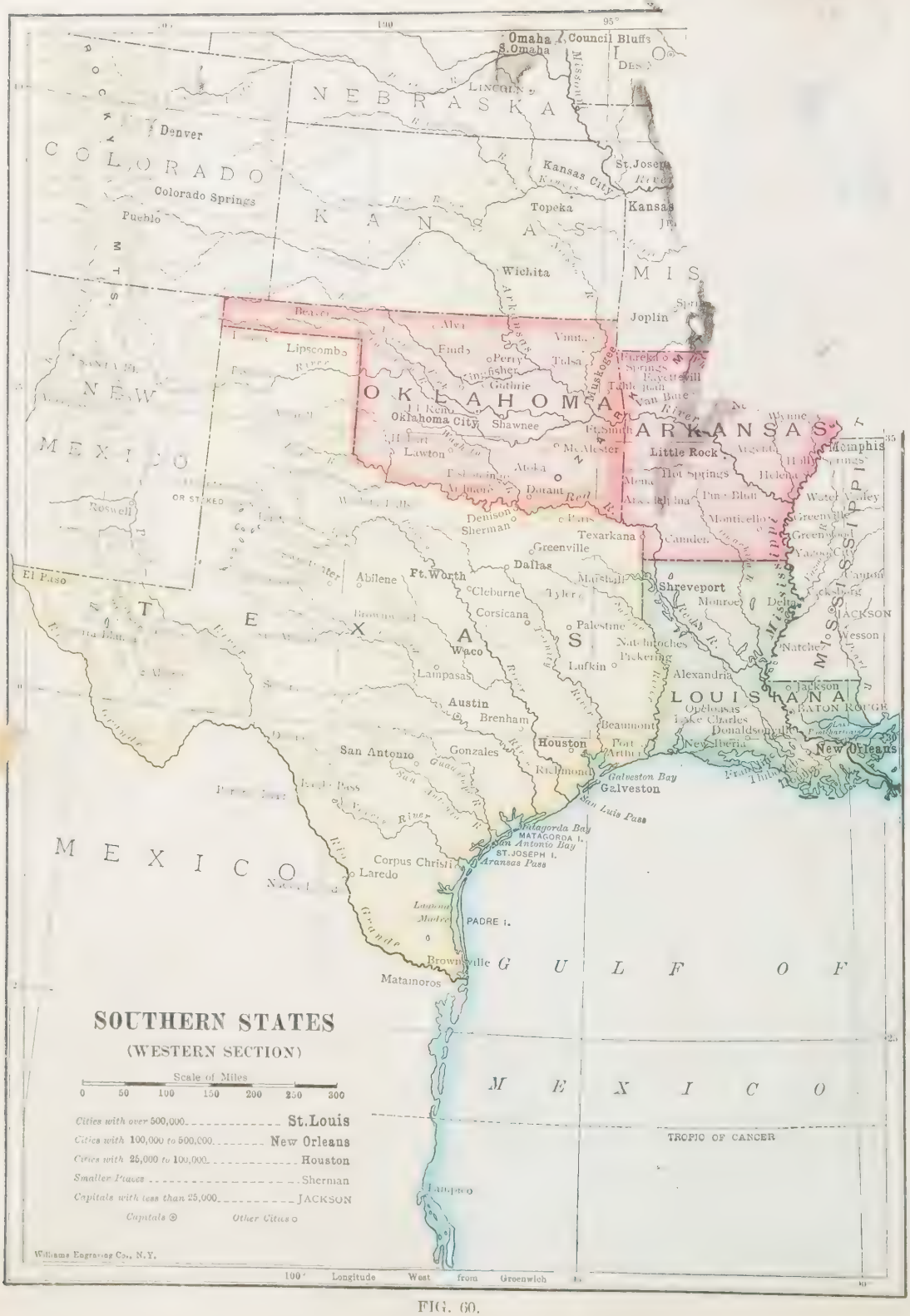
SOUTHERN STATES
(WESTERN SECTION)
Scale of Miles
0 50 100 150 200 250 300
Cities with over 500,000 St. Louis
Cities with 100,000 to 500,000 New Orleans
Cities with 25,000 to 100,000 Houston
Smaller Places Sherman
Capitals with less than 25,000 JACKSON
Capitals
Other Cities
Williams Engraving Co., N.Y.
100° Longitude West from Greenwich
NEBRASKA
COLORADO
KANSAS
OKLAHOMA
ARKANSAS
LOUISIANA
NEW MEXICO
TEXAS
MEXICO
GULF OF MEXICO
TROPIC OF CANCER
Omaha
S. Omaha
Council Bluffs
LINCOLN
Denver
Colorado Springs
Pueblo
Kansas City
St. Joseph
Topeka
Kansas
Wichita
Joplin
Lipscomb
Alva
Enid
Perry
Tulsa
Muskogee
Fayetteville
Guthrie
Oklahoma City
Shawnee
Ft. Smith
Van Buren
Lawton
McAlester
Little Rock
Hot Springs
Memphis
Helena
Atoka
Durant
Denison
Sherman
Texarkana
Camden
Greenville
Dallas
Abilene
Ft. Worth
Cleburne
Tyler
Shreveport
Monroe
Delta
Canton
Jackson
Wesson
Natchez
Corsicana
Palestine
Waco
Nacogdoches
Pickering
Lufkin
Alexandria
Lampasas
Jackson
Austin
Brenham
Opelousas
Lake Charles
Donaldsonville
New Iberia
BATON ROUGE
New Orleans
Beaumont
Port Arthur
Houston
San Antonio
Gonzales
Richmond
Galveston Bay
Galveston
San Luis Pass
Matagorda Bay
MATAGORDA I.
San Antonio Bay
ST. JOSEPH I.
Aransas Pass
Corpus Christi
Laredo
Laguna Madre
PADRE I.
Brownsville
Matamoros
Roswell
El Paso
Rio Grande
Mississippi
Lampico

FIG. 60.

SOUTHERN STATES
(EASTERN SECTION)
Scale of Miles
0 50 100 150 200 250 300
Cities with over 500,000 New York
Cities with with 100,000 to 500,000 New Orleans
Cities with 25,000 to 100,000 Augusta
Smaller Places Columbus
Capitals with less than 25,000 JACKSON
National Capitals State Capitals Other Cities
Williams Engraving Co., N.Y.
Longitude West from Greenwich
GULF OF MEXICO
ATLANTIC OCEAN
BAHAMA ISLANDS
CUBA
Havana
ISLE OF PINES
NASSAU
Cape San Blas
Cape Romano
Cape Sable
Cape Canaveral
Cape Fear
Cape Hatteras
Cape Charles
C. Lookout
Cape Romain
Delta of the Mississippi River
Raccoon Pt.
Tropic of Cancer
Florida Strait
Chicago
Toledo
Cleveland
Pittsburg
Philadelphia
New York
Baltimore
Washington
Richmond
Norfolk
Portsmouth
Louisville
Cincinnati
Columbus
Dayton
Indianapolis
Evansville
Henderson
Paducah
Memphis
Nashville
Knoxville
Chattanooga
Atlanta
Birmingham
Montgomery
Mobile
New Orleans
Savannah
Charleston
Jacksonville
Tampa
Key West
Havana
Wilmington
Raleigh
Charlotte
Columbia
Augusta
Macon
Atlanta
Tallahassee
Pensacola
Vicksburg
Little Rock
St. Louis
Cairo
Louisville
Lexington
Frankfort
Bowling Green
Hopkinsville
Clarksville
Union City
Jackson
Corinth
Holly Springs
Sheffield
New Decatur
Gadsden
Tuscaloosa
Selma
Montgomery
Union Springs
Greenville
Troy
Eufaula
Evergreen
Dothan
Tallahassee
Lake City
Gainesville
Ocala
Orlando
Tampa
Bartow
Manatee
Punta Gorda
Palm Beach
Miami
Key West
Jacksonville
Palatka
Daytona
St. Augustine
Brunswick
Fernandina
Savannah
Waycross
Valdosta
Thomasville
Albany
Cordele
Americus
Columbus
Macon
Dublin
Augusta
Orangeburg
Columbia
Greenville
Spartanburg
Charlotte
Asheville
Wilmington
Goldsboro
Newbern
Greensboro
Danville
Lynchburg
Roanoke
Staunton
Fredericksburg
Parkersburg
Wheeling
Pittsburg
Harrisburg
Trenton
Wilmington
Dover
Cleveland
Sandusky
Toledo
Chicago
Michigan
Ft. Wayne
Cincinnati
Newport
Covington
Huntington
Ashland
Winchester
Bristol
Johnson City
Knoxville
Cleveland
Chattanooga
Dalton
Gainesville
Rome
Huntsville
Tuscaloosa
Birmingham
Anniston
Talladega
Greenville
Columbia
Newberry
Greenwood
Athens
Atlanta
Augusta
Orangeburg
Georgetown
Charleston
Wilmington
Raleigh
Goldsboro
Newbern
Norfolk
Portsmouth
Richmond
Lynchburg
Danville
Roanoke
Staunton
Fredericksburg
Parkersburg
Wheeling
Pittsburg
Harrisburg
Trenton
Philadelphia
Baltimore
Washington

Why? 73. What advantage do you see in the position of Pittsburg? 74. By or through what states would one pass in going by boat from Pittsburg to the Gulf of Mexico? (See map, Fig. 6.) 75. Measure the length and width of Pennsylvania. Also find its area. (See Appendix.) 76. Is Pennsylvania larger or smaller than New York? New England? 77. Is it larger or smaller than the state you live in? How much?

General Review Questions

1. Describe the surface features of this group of states from the relief map (Figs. 12 and 15). 2. State the principal industries. 3. In which states are they carried on? 4. Make a list of the ten largest cities. 5. Locate each of these cities, and explain its importance. 6. Make a drawing of these states, including the chief rivers, cities, mountains, and the state boundaries.

Suggestions

1. Make a drawing of New York State, showing the Hudson River and the Erie Canal. 2. Explain why New York City and Buffalo, at opposite ends of the state, are such large cities. 3. Collect pictures of Niagara Falls. 4. Can you give a reason why the Erie Canal was dug to Lake Erie rather than to Lake Ontario? 5. How can a canal be built where land is not level? 6. Give reasons why freight charges are less on canals than on railroads. 7. Make drawings of some of the more common fish. Fill in the colors. 8. Visit a fish store to see the kinds of fish mentioned in the text. 9. Make a collection, for the school, of some marble, granite, slate, hard coal, soft coal, cotton, wool, leather, and iron ore. 10. Collect samples of cast iron, wrought iron, and steel. 11. Write a composition telling why one might prefer to live in a large city, or in the country. 12. What names beginning with *New* do you find on the map? How can you explain such frequent use of this word? 13. Write the abbreviation for each of the states in this group. 14. Name and locate the capital of each state in this group. 15. Find from what places in these states canned fruits and vegetables, sold in a neighboring grocery store, are obtained. 16. Visit some factory near you. Find how many persons are employed there, how much raw material is consumed per week, and how much it costs.

3. The Southern States

Map study

In which states of this group are there mountains? 2. What are the names of the mountains? 3. Where are the plains (Fig. 62)? 4. Which is the largest river? Name and trace its principal tributaries. 5. Locate Chesapeake Bay. What rivers enter it? 6. What large cities are on it? 7. How is Texas separated from Mexico? 8. Which is the largest state? Which the smallest? How does it compare in area with Rhode Island? In population? (See Appendix.) 9. Which state is largely a peninsula? 10. How far distant are the southern points of Florida and Texas from the Tropic of Cancer? What does this suggest about the climate of the Southern States? 11. What waters east and south of these states?

States included here

These states are not always grouped together as Southern States. Sometimes Kentucky is considered one of the Central States, which is the next group to be studied; and Delaware, Maryland, Virginia, and West Virginia are often classed with New York, New Jersey, and Pennsylvania, as the Middle Atlantic States. Name the sixteen states of this southern group.

Area and population

These sixteen states have more than five times the area of the Northeastern States; and Texas alone, the largest state in the Union, is larger than the entire group of Northeastern States.

The population of all the Southern States together is not much greater than that of the Northeastern States. This fact suggests that the chief occupations may be different from those in the states already studied.

Surface features

We have seen that much of the land in the Northeastern States is mountainous or hilly. The Appalachian Mountains extend also

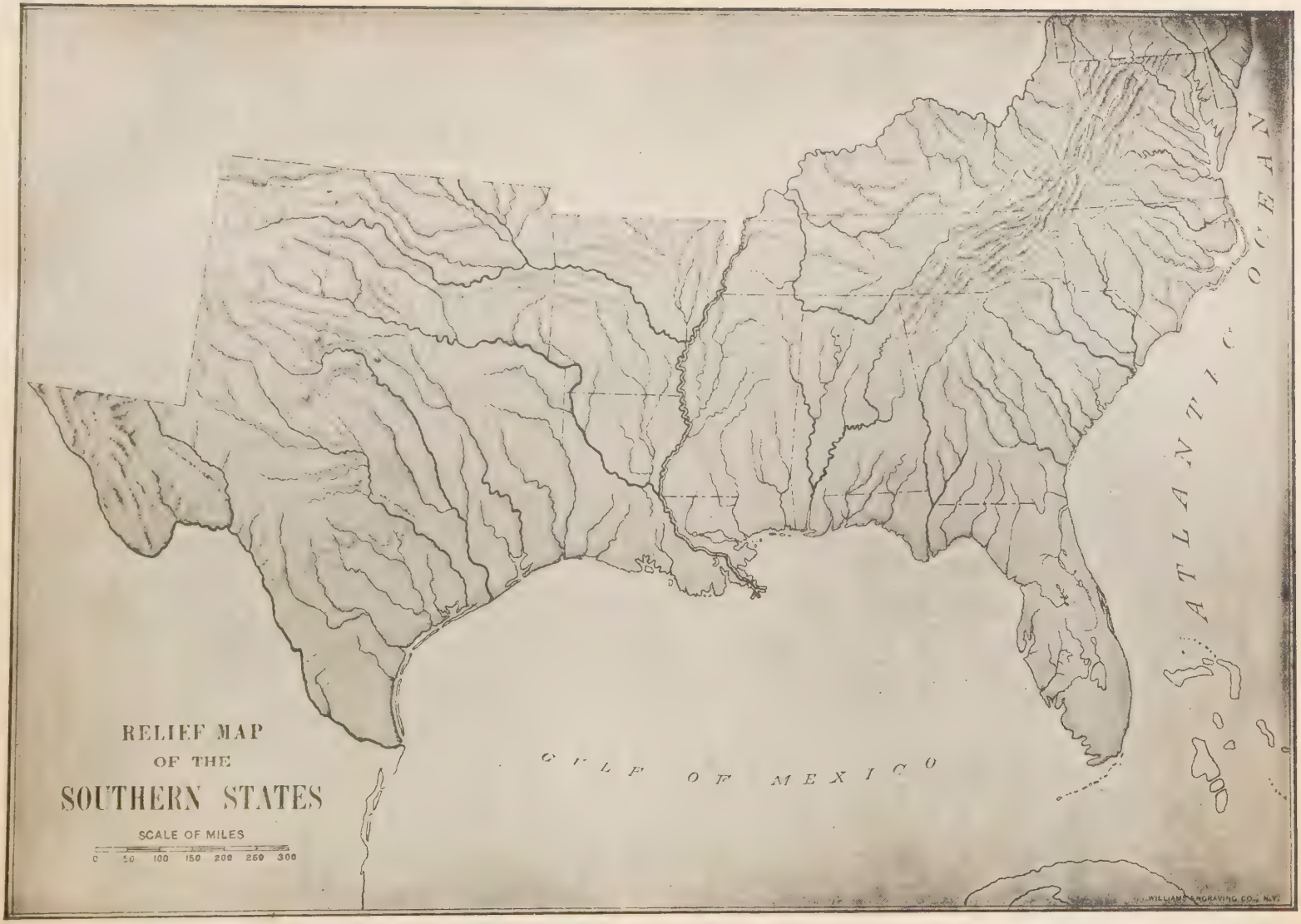
RELIEF MAP
OF THE
SOUTHERN STATES
SCALE OF MILES
0 50 100 150 200 250 300
GULF OF MEXICO
ATLANTIC OCEAN
WILLIAMS ENGRAVING CO., N.Y.

Fig. 61.

PHYSICAL MAP OF
SOUTHERN STATES
Scale of Miles
0 50 100 150 200 250 300
KEY
Over 2,000 ft.
From 500 to 2,000 ft.
From 100 to 500 ft.
From 0 to 100 ft.
From 0 to 650 ft.
From 650 to 6,500 ft.
Below 6,500 ft.
Sea Level
Williams Engraving Co., N.Y.
GULF OF MEXICO
ATLANTIC OCEAN
GULF COASTAL PLAIN
ATLANTIC COASTAL PLAIN
APPALACHIAN HIGHLAND
MISSISSIPPI VALLEY
GREAT CENTRAL PLAIN
ALLEGHENY PLATEAU
BLUE RIDGE
UNAKA MTS.
SMOKY MTS.
ALLEGHENY MTS.
ROCKY MTS.
GUADALUPE MTS.
EAGLE MTS.
DAVIS MTS
SANTIAGO MTS.
LLANO ESTACADO (STAKED PLAIN)
MEXICO
CUBA
PENINSULA OF FLORIDA
BAHAMA ISLANDS
FLORIDA KEYS
FLORIDA STRAIT
DRY TORTUGAS
Cape Sable
Cape Romano
Cape Canaveral
Cape Fear
Cape Lookout
Cape Hatteras
C. Henry
C. Charles
Cape Romain
Cape San Blas
Cape St. George
Apalachee Bay
Tampa Bay
The Everglades
Delta of the Mississippi River
Raccoon Pt.
GALVESTON I.
San Luis Pass
MATAGORDA
Corpus Christi Bay
Laguna Madre
PADRE I.
Rio Grande
Mississippi River
Red River
Ohio River
Republican R.
Longitude West from Greenwich
105
100
95
90
85
80
25
30
35

FIG. 62.

across some of the Southern States, as you can see from the map. Name the states that these mountains cross.

1. The mountains

These mountains are generally low, as they are in the states farther north; but in western North Carolina and eastern Tennessee they are much higher. In fact, the highest peak east of the Mississippi River is Mount Mitchell in North Carolina. It rises 6711 feet, or 432 feet higher than Mount Washington in New Hampshire.

There are also low mountains in western Arkansas and in eastern Oklahoma; and a portion of the Rocky Mountains extends across western Texas.

2. The plains

The rest of this section consists mainly of plains. Along almost the entire coast, from New Jersey to western Texas, there is a broad strip of low, level land known as the *Coastal Plains*. The Coastal Plains are very extensive in Florida, which is, therefore, a remarkably level state (Fig. 63).

(1) The Coastal Plains

Between the Coastal Plains and the Appalachian Mountains, on the east and south, there is a very fertile, rolling country called the *Piedmont* (meaning "foot of the mountain") Plateau. It slopes seaward, causing the streams, which are short, to flow in the same direction.

(2) The Piedmont Plateau

Fig. 63. — Much of the South is level land like that in the picture, which shows an immense peach orchard on the plains of Florida.

From New York to Alabama the streams that flow from the Piedmont Plateau to the Coastal Plains have rapids and falls where they cross the dividing line between these two regions. This boundary is, therefore, called the *Fall Line* (Fig. 64). There are rapids and falls along this line, because the streams have been able to dig more rap-

(3) The Fall Line and its importance

idly into the soft layers of the Coastal Plains than into the harder rocks of the Piedmont Plateau.

Before white men came, the Indians placed their villages on the streams

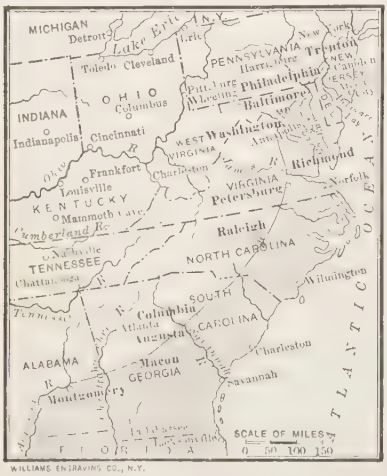

FIG. 64.—The Fall Line. Coastal Plains dotted, Piedmont and other sections left white. Cities printed in heavy type are located along the Fall Line.

along this line. The early settlers also located their villages here, partly because of the water power, and partly because boats going upstream were stopped by the rapids and falls. Now many of these villages have become large cities. Note (Fig. 64) how many cities are on the Fall Line. Name them.

(4) *Other plains*

As in western Pennsylvania, the portions of these states just west of the Appalachian Mountains are a low plateau deeply cut by river valleys. It gradually becomes lower and more regular farther west, until it merges into the broad and fertile plains of the Mississippi Valley.

West of the Mississippi the land gradually rises again until in western Texas it forms a plateau 4000 to 5000 feet above the level of the sea. This plateau region is a part of the Great Plains of the West.

One of the most level parts of this region is along the Mississippi River. This river is bordered on both sides by broad, fertile flood plains; and at its mouth is a large and very level delta, whose surface is only a few feet above the sea.

3. The coast line

Chesapeake Bay affords several excellent harbors. South of Norfolk the coast line is much more regular, and fine harbors are not so numerous as they are in the Northeastern States. There are a number of bays, and on some of them there are good harbors. But others are too shallow for large vessels, and some of them are shut in by sand bars. Where cities

FIG. 65.—Another view in the Southern States. Much of the land is as level as this. The crop raised in this field is the peanut, which the boys and girls are picking from the roots of the peanut plants.

have grown on such bays the entrances are kept open by dredging or by building jetties which cause a current that sweeps the sand away from the channel.

Southern Florida has a very irregular coast with many reefs and small islands, called *keys*. This irregular coast, and in fact the whole southern end of Florida, has been the work of coral polyps. These animals live in countless numbers in the warm waters of the Gulf Stream which flows along the Florida coast. They have built coral reefs here, and the limestone of southern Florida is made of the remains of the coral.

FIG. 66. — A view at Miami in Florida, showing the palms and other vegetation of a warm climate.

The climate

The climate of this region is much better for farming than that of the Northeastern States. There is more rain in nearly all parts except in western Texas, where the chief industry is grazing.

The temperature is especially favorable, for the winters are not severe. During the cold, disagreeable Northern winter, the weather in the South is mild, like spring and autumn in the North. Flowers are in blossom and birds are singing, many of the birds having migrated there from the North for the winter. Large numbers of Northern people also go South to spend the winter.

The summers too are more favorable, for they are longer than in the Northeastern States. Therefore, many kinds of plants can be grown here that cannot live in the North. It is easier also to raise cattle and other live stock. They can be left out of doors in winter, and can find grass to eat when the ground in the North is frozen and covered with snow.

FIG. 67. — A cotton field on a Southern plantation in the picking season

Agriculture

1. Its rank as an industry

With its large amount of level land, its fertile soil and favorable climate, the South has great advantages for

agriculture over the Northeastern States. Many people are engaged in other occupations, but farming is the leading industry. The farms here are usually called *plantations*.

Three very important crops are raised on the Southern plantations that cannot be grown in the North; namely, cotton, sugar cane, and rice.

The most important of these crops, indeed the most valuable of all the farm products of the South, is cotton. It is the principal crop in all the states from North Carolina to central Texas. This region is often spoken of as the *cotton belt*.

2. Cotton
(1) *Its importance*

In 1908 the Southern States produced about 13,500,000 bales of cotton, each weighing a little over 500 pounds. In the same year the entire world produced a little over 18,000,000 bales, which makes it clear that the United States furnished much more than half of all the cotton grown. Every person has use for cotton. Dresses, hosiery, much underclothing, thread, and, indeed, hundreds of articles are made of it. We see, then, that one of the chief industries of the Southern States is to help clothe the peoples of the world. The amount of cotton raised in one year is usually worth more than all the gold and silver mined in the whole world in a year. It is also worth as much as all the wheat produced in the United States in a year, or even more. Even if there were no other crop raised there, cotton alone would make the Southern States of great importance.

Fig. 68. — Picking cotton on a Southern plantation. The white, woolly cotton is seen on the plant in the lower right-hand corner.

(2) *Method of raising and marketing it*

The cotton seeds are planted in the spring, in rows about three feet apart, and the weeds are kept out until the plants are nearly grown. The cotton plant reaches a height of two or three feet, and bears large blossoms which produce pods, in which the cotton and cotton seed are inclosed. When ripe, the pods burst open, showing the white tufts of *cotton*, resembling in appearance the downy substance in the thistle, or in the pod of the milkweed.

When a great number of these pods have opened, a cotton plantation presents a beautiful sight, — much like a field flecked with snow (Fig. 67). Then the busy season for the pickers begins. As many as two or three hundred men, women, and children may be at work in one field, carrying bags to be filled with cotton, and singing and chattering the livelong day.

When plucked from the pods, the cotton is attached to seeds, and these must be removed before the cotton can be of use. The seedless cotton is tightly pressed into bales, covered

with coarse bagging, bound with iron bands, and shipped to the warehouses, to be sold.

A second crop that is produced nowhere else in the United States but in the South is *sugar cane*. There are a number of plants from whose sap sugar is made. One of these, the sugar maple, has already been mentioned (p. 33); another is the sugar beet, raised in great quantities in Europe, and also, of late, in many of our states. This beet is now a very important source of sugar, because it can be raised in a cool, temperate climate. For a long time, however, the chief source of sugar has been the sugar cane, a plant that looks somewhat like corn (Fig. 70).

3. Sugar cane and sugar

(1) *Plants from which sugar is obtained*

Sugar cane requires a fertile soil, and grows only in warm regions where there is little or no frost, even in winter. For this reason most of the cane sugar comes from tropical lands. Our most noted sugar district is the delta of the Mississippi River in Louisiana; but sugar raising is increasing in importance in Texas and in Georgia.

(2) *Where sugar cane is grown*

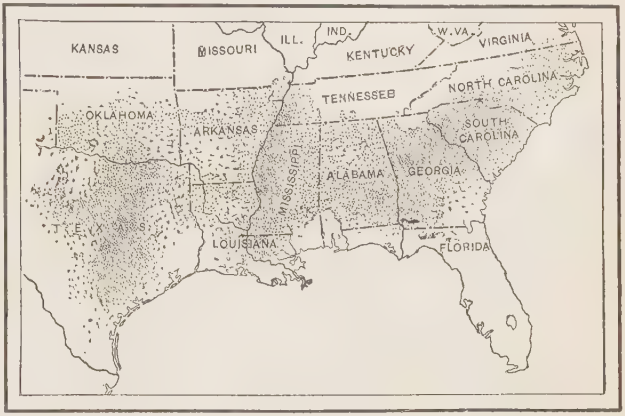

FIG. 69. — The cotton belt. Each dot represents 1,000,000 pounds of cotton.

Some single plantations in these states have several thousand acres in sugar cane. The cane is planted in either the fall or spring, in rows about six feet apart. The stalks grow in the summer to be two or more inches in diameter, and reach such a height that a man riding through a field on horseback may be entirely hidden from view. The cane is ready to be cut in the fall, after the middle of October. As soon as the stalks are cut, they are drawn to the sugarhouse in wagons, or, on the larger plantations, in railway cars (Fig. 71).

(3) *How it is cultivated*

FIG. 70. — Cutting the sugar cane on a plantation in Louisiana.

In the sugarhouse the cane is ground between rollers in order to squeeze out the juice. The waste cane, left after the juice is pressed out, is used as a fuel to run the engines of the sugarhouse; the juice, or sap, is placed in large vats and warmed, to drive out the water in it and to crystallize the sugar. This

(4) *How the sugar is obtained*

FIG. 71. — Carrying the sugar cane to the cars which will take it to the sugarhouse. A scene on a Louisiana plantation.

leaves two products, a thick black molasses, and brown sugar. Some large sugarhouses produce as much as 14,000,000 pounds of sugar in a year.

The crude, brown sugar is sent from the sugarhouse to a refinery, either in NEW ORLEANS or in the North. At the refinery it is changed to white sugar, from which the various grades of granulated, powdered, and lump sugar are made. In changing the brown sugar to white, burned bones, called bone black, are used to filter out the impure parts. The bones are obtained from Chicago, and elsewhere, where large numbers of animals are killed for meat.

The molasses is used for various purposes, some of it being manufactured into sirup for the table, and some of it into rum. Molasses is a by-product, like sawdust in a lumber mill, and is not of great value to the sugar raiser.

4. Rice

(1) Its importance as a food

Rice, a third Southern crop that is not grown in the North, is one of the most important foods in the world; it is, in fact, the chief food of some nations, for example, the Chinese. It is not eaten so much in our country, but still we use far more than we raise.

(2) Why we may raise more in the future

One reason why we have raised too little rice for our use, is that it requires a warm climate and a damp, even a swampy soil. The climate is suitable in many parts of the South, but the wet soil is not so common. On the Coastal Plains and the river flood plains, from the Carolinas to Texas, there is some such land. There rice culture has long been carried on, the principal districts being in South Carolina and Louisiana.

FIG. 72. — Threshing rice on a large rice plantation in Louisiana.

In recent years rice production has been greatly increased by irrigation. By leading the water from streams, or springs, it has been found possible to make the soil as wet as necessary even on some of the higher, well-drained plains. With irrigation, rice culture may be carried on over much of the warmer part of the South. Some day, therefore, our country may supply all the rice we need, and even have some to spare. Louisiana, Texas, and South Carolina produce most of the rice now raised in the country, though some comes from other Southern States.

5. Tobacco

When white men first came to America, they found the Indians smoking a weed called *tobacco*. The white men soon learned the habit from the Indians, and introduced it into Europe, so that a great demand for tobacco arose. From that time, one of the principal crops of Virginia has been tobacco. Kentucky now raises even more than Virginia, and these two states together produce more than one half of the entire amount grown in our country. Yet tobacco raising is an important industry in nearly every one of the Southern States, Tennessee and North Carolina growing an especially large amount.

Some tobacco is raised also in the Northern States, even as far north as the Connecticut Valley (p. 17).

The leading tobacco markets of the Southern States are RICHMOND, PETERSBURG, LYNCHBURG, and DANVILLE, Va.; DURHAM, N.C.; CLARKSVILLE, Tenn., and LOUISVILLE, Ky.

6. Other important crops

Besides the crops that have been named, almost all the farm products common to other parts of the country are raised in the South. For instance, great amounts of corn, wheat, hay, and oats are grown, as well as fruits and vegetables.

FIG. 73. — A field of tobacco in Tennessee.

Truck farming and gardening are also profitable industries. In the warm South, fruits and vegetables ripen earlier than in the North, and these early products can be sent North for sale long before the season for them there. There is so great a demand for these early fruits and vegetables, that gardening has rapidly developed in recent years.

Whole trainloads of tomatoes, strawberries, peaches, green peas, potatoes, and other fruits and vegetables are sent

FIG. 74. — A field of corn in Arkansas. Notice how very tall the corn grows in the warm climate.

to Northern cities during early spring and summer.

In the most southerly part of this group, especially in Florida, fruits that demand an almost tropical climate are grown. Among these are the orange (Fig. 75), lemon, and grapefruit; and in southern Florida, the pineapple, cocoanut, and banana.

7. Stock raising

Various kinds of live stock, such as horses, cattle, sheep, and hogs, are raised, each plantation usually having some of these animals. Large numbers of cattle are reared also in the open pine forests of the Coastal Plains, especially in Florida and Georgia.

An important draft animal, well suited to the warm climate, is the mule. On the fertile plains, especially in Tennessee and Kentucky, there are stock farms where particular attention is paid to raising mules and fine breeds of horses.

Kentucky is famous for its fine stock, especially horses and mules, raised in the "Blue Grass Region" about LEXINGTON. The grass here has a bluish color, and is very nourishing, suited for the raising of stock.

The reason why this grass is so nourishing is that the soil in this section is made of bits

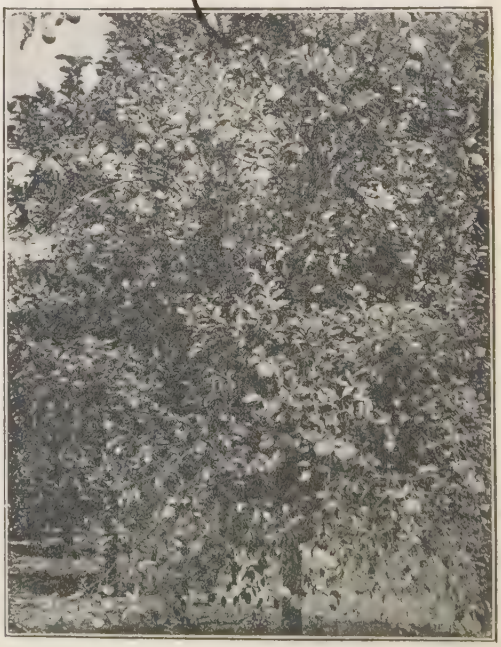

FIG. 75. — An orange tree, loaded with fruit, in a Florida orange grove.

of decayed limestone in which there is lime phosphate, an excellent plant food. This phosphate comes from the shells of small animals

which lived in the sea that once covered this region. Dying, they helped to make a deposit of sediment on the sea bottom. This sediment has since changed to limestone rock, which is now raised above the sea. As the limestone decays, the phosphate mixes with other rock bits, and thus fertilizes the soil.

Because of the abundance of limestone in this part of Kentucky, numerous caves are found there. These caves are long tunnels that have been slowly eaten out by water that percolates through the rock, dissolving the limestone. The largest of all is the *Mammoth Cave*, which is said to have more than one hundred and fifty miles of tunnels, or galleries. These wind about in an irregular manner, some being many feet below others, and all together forming a network, or *labyrinth*, into which a stranger dares not venture without a guide.

FIG. 76. — Cattle grazing on the broad plains of western Texas.

In the western part of Texas, particularly in the north, where there is little rainfall, grazing is the chief industry. The climate is so dry that the grass cures, and becomes hay, while still upon the ground, making excellent feed for cattle (Fig. 76) and sheep. One may travel for miles over the plains of western Texas, seeing little else than a ranch house here and there, with now and then a herd of cattle or sheep, and cowboys riding to and fro.

There is no reason for large cities here, and the life of the cowboys and sheep herders is a lonely one. It is their work that helps to supply our tables with meat, and to give us our woolen clothing and our shoes. Explain how hundreds of New England families depend for their daily meat upon the products of these distant, lonely ranches.

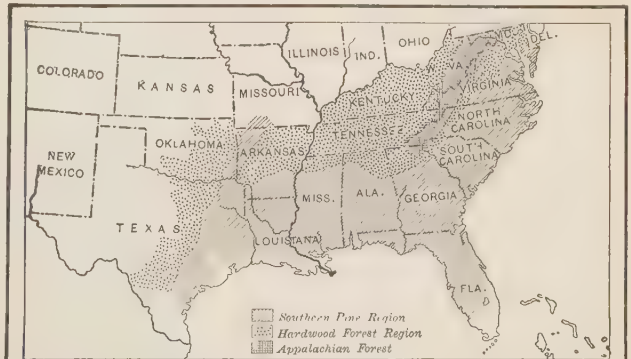

FIG. 77. — The forest regions of the Southern States.

How much people depend upon one another!

Figure 77 shows how extensive the forests are in the Southern States. Not

FIG. 78. — A view on the water front at Savannah, where much lumber is shipped.

wood are shipped from MEMPHIS and from other points. Name some of the uses to which these different kinds of wood are put. Nearly one half of all the timber now cut in the United States comes from the South.

Lumbering

1. Extent of forests; kinds of trees

all the land, however, marked as forest on this map is covered with woods. Farming is a very great industry in these regions. The map is intended to show merely that *much timber* grows in all these states. As a matter of fact, about twice as much land is covered with forest as is taken up by farms.

There is a great amount of hard pine — often called Georgia pine — on the Coastal Plains. This timber is sent to all the cities of the North. It is shipped from the coastal cities of CHARLESTON, S.C., SAVANNAH and BRUNSWICK, Ga., JACKSONVILLE and PENSACOLA, Fla., and MOBILE, Ala., as well as from other seaports. On the higher lands such hardwoods as oak and hickory thrive (Fig. 79). In which states are these higher lands found? Quantities of hard-

2. Method of lumbering

The method of lumbering in the South is very different from that of the Northeastern States (p. 18). In the South there are no heavy snows to level the uneven ground and to cause floods in the streams. Therefore, logs cannot be floated down to the tidewater by means of spring freshets. On this account the sawmills are located in the midst of the forests, if possible on the river banks. To them the logs are brought, either by water, by wagon, or by train (Fig. 80), and then are sawed into lumber.

Fishing

1. Kinds of fishing

There is much fishing here, as in New England, but the kinds of fish are different. Cod and halibut are not found, because they live only in the colder waters. There are, however, other kinds of food fish, among the

FIG. 79. — Lumbermen at work cutting hardwood logs in the mountains of western North Carolina.

most valuable being oysters, shad, and bluefish; and in southern Florida there are sponge and turtle fishing. The sponge grows in the warm, shallow waters of the coral reefs, and the immense sea turtles swim about on the surface of the ocean. The alligator, whose skin is made into a valuable leather, also is found in Florida, but is becoming scarce.

2. The oyster industry

Oysters are found in the bays all the way from Cape Cod to the Rio Grande; but one of the best places for them is Chesapeake Bay, where the waters are warm, shallow, and quiet. From this broad, branching bay they are collected in great quantities, some being shipped away fresh in the shell, while many are canned, like fruit. BALTIMORE and NORFOLK are especially noted for this industry.

When young, the oysters swim freely about; but after reaching a certain age, they sink to the bottom, fasten themselves to some solid substance, as a stone or an oyster shell, and never afterwards move from that spot. They depend for food upon what is brought to their mouths by the tidal currents. Sometimes they can be picked up by hand from a boat; but usually the water is so deep that they must be dragged, or *dredged*, up with a long-handled rake. Steamers and sailing boats are used for this purpose.

FIG. 80. — Lumbermen loading logs on a train in the forest of eastern North Carolina.

Oysters thrive so well in these warm Southern waters, and they are so highly prized for food, that the culture of oysters is given careful attention. There are many "oyster farms"; that is, patches of shallow water in which young oysters are planted, as seeds are planted in a garden, to be gathered when they have grown to full size. These "farms" are fenced in by stakes, and are owned and cared for as carefully as ordinary farms are.

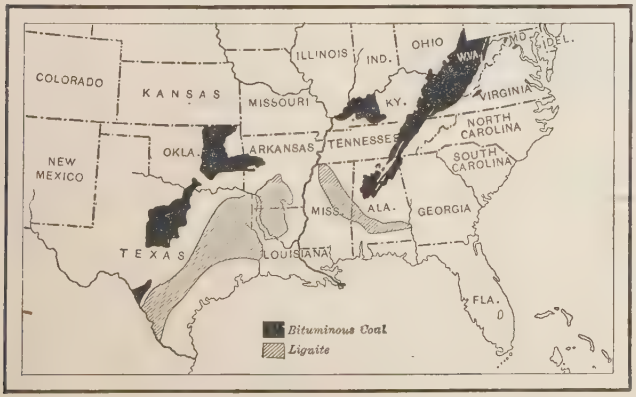

FIG. 81. — The coalfields of the Southern States.

Growth of the South

From what has been said, you can see that *farming* and *lumbering* are among the leading industries of the South. Yet neither of these requires a dense population, or causes the growth of large cities. From this it is clear why people are more scattered in the Southern than in the Northeastern States.

Of late years, however, other industries have been rapidly developing in the South; the population has been increasing very fast, and seems likely to increase much more in the near future.

Mining is one of the occupations that

have been rapidly developing, and many valuable minerals are found. Among these minerals the most important is soft or bituminous coal, which is mined in large quantities. The states where this coal is found are shown on the map (Fig. 81). What are their names? Note also what states have lignite, or brown coal. This is not so good as the bituminous coal, but is of much value. One fourth of the coal of the country now comes from these states.

Mining
1. Coal

Iron ore is mined in several of the Southern States, especially Tennessee and Alabama; but Alabama supplies nearly as much as all the others together. Only two other states in the country, Minnesota and Michigan, produce more iron ore than Alabama. The most noted mining region in the South is that around BIRMINGHAM, Ala., near the southern end of the Appalachian system. Here iron ore, coal, and limestone, the three materials necessary for the production of iron and steel (p. 28), are found very close together.

2. Iron ore

There is not much natural gas produced in the Southern States, though it is found in several of them. The greatest quantity comes from Oklahoma. Petroleum, however, is of very great importance. Vast quantities have been found in Texas and in Louisiana, near the Gulf of Mexico, and this is now one of the most noted oil regions in the world. Millions of barrels of oil are produced there every year. Much is also found in West Virginia, in Oklahoma, and some in Tennessee.

3. Oil and gas

FIG. 82. — A marble quarry near Knoxville, Tennessee.

There are valuable deposits of granite in several of the states, especially North and South Carolina, Georgia, Arkansas, and Texas. Excellent sandstone for building, and limestone for various uses, are also widely distributed. Among the important uses of the limestone here, as in the North, is the manufacture of Portland cement (p. 31).

4. Building stones and clays

There is much beautiful marble in Texas, Georgia, and Tennessee. The Georgia marble is widely known for its great beauty; and near KNOXVILLE, in eastern Tennessee, marble of different colors is quarried (Fig. 82). What city in Vermont is likewise noted for marble (p. 23)?

Clays of fine quality for bricks, tiles, etc., are found in many places.

The soil of farms often becomes worn out and needs a fertilizer. There are va-

rious kinds of fertilizers, such as manure and bone dust, which furnish the plant food needed by crops; but one of the most important kinds is *mineral phosphate*. This is found in great quantities in Florida, Tennessee, and South Carolina; and from these states much phosphate is now obtained. Besides being used in the South, it is shipped from CHARLESTON, JACKSONVILLE, and TAMPA for use on farms in the North.

5. Phosphates

The phosphate is composed largely of the fossil remains of animals, such as the teeth of sharks, and the bones and teeth of larger land animals that lived in this country in former ages.

The South produces a variety of other minerals. Salt, for instance, is obtained in Texas and Louisiana. Bauxite, the mineral from which aluminum is made, is found in Georgia, Alabama, and Arkansas. Gold is mined in North and South Carolina, Georgia, and Alabama; silver in Texas and Tennessee; and copper in Tennessee. Some precious stones, such as the sapphire and the diamond, are also found. The South is, therefore, a rich mineral region, and mining is rapidly growing in importance.

6. Other mineral products

Before the Civil War there was little manufacturing in the South. The negroes, who did most of the hand labor, lacked the training necessary to handle machinery. The raw materials were shipped away, and the manufactured articles were brought back. Thus cotton went to England, New England, and elsewhere, some of it to be returned in the form of cloth; and lumber was shipped to various Northern cities, often to be sent back in the form of furniture. Very little iron ore or coal was mined in those days.

Manufacturing

1. Great advances in this industry

The situation is now greatly changed. Indeed, the advance made in manufacturing since the Civil War has been wonderful. This is shown in Figure 83, for a single one of the products of the South. Explain this figure.

There are so many valuable raw products in the South, that there are great opportunities for manufacturing. Among these products are cotton, sugar cane, corn, wheat, cattle, sheep, lumber, and iron ore. There is also an abundance of coal for power, and there are many rivers and mountain streams that can furnish water power.

2. Conditions favorable to manufacturing

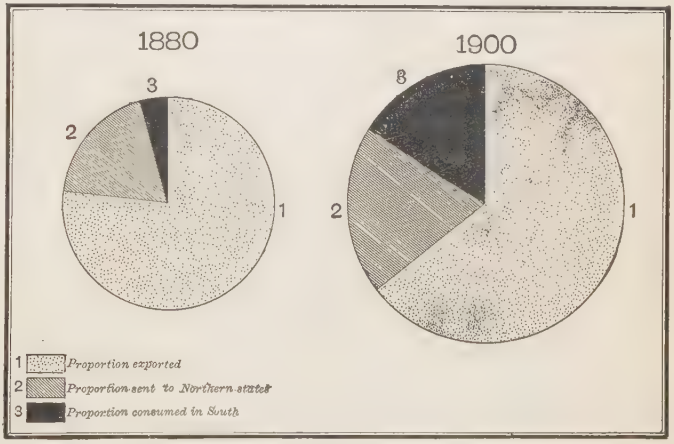

FIG. 83.— Diagram to show what was done with the Southern cotton in 1900, as compared with 1880.

In some cities there are many cotton mills; for example, in CHARLOTTE, N.C., there are twenty-three, and in and near SPARTANBURG, S.C., thirty-seven. In many other towns there are one or two. From Danville, Va., to Atlanta, Ga., cotton mills are very numerous, and there are others

3. Cotton manufacturing

(1) *Extent of cotton manufacturing, and leading centers*

throughout the cotton belt. Indeed, the Piedmont Plateau has become one of the greatest cotton manufacturing sections in the world. The map (Fig. 84) shows the distribution of these mills in a number of the Southern States.

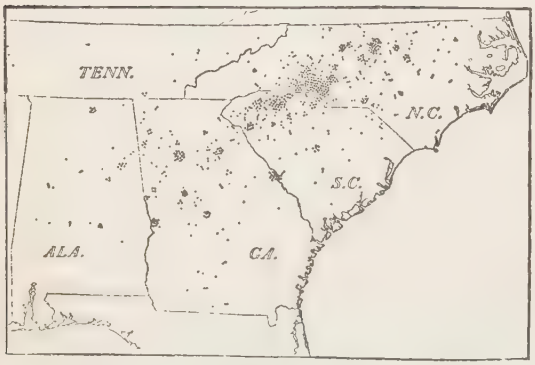

FIG. 84. — A map to show the extent of cotton manufacturing in the South. Each dot represents one mill.

While hundreds of Southern cities and towns now manufacture cotton cloth and cottonseed oil, CHARLOTTE, N.C., COLUMBIA, GREENVILLE, and SPARTANBURG, S.C., and AUGUSTA, COLUMBUS, and ATLANTA, Ga., lead in these industries. What cities in New England are noted for cotton manufacture (p. 31)? Where does their raw cotton come from?

(2) Meaning of a "mill"

The following facts from an Alabama cotton mill give some idea of the size and output of these mills. This particular mill employs 600 hands, including men, women, boys, and girls, and pays them about $2000 a week in wages. Every day this mill consumes 15 bales of cotton, each weighing about 500 pounds. Since the average yield per acre of land is about 250 pounds, you can easily figure out how many acres of cotton are required in one year to supply this single mill.

In this mill, as in many others, white people are employed to do the work. While many of the mills are in cities, others are in the country; and there villages have sprung up near the mills. Some of these new villages are already so large that they have their own schoolhouses and churches.

(3) Value of the cotton gin

In the early days the cotton seeds were slowly picked out of the cotton by hand and thrown away. Whitney's invention of the cotton gin, in 1793, made it possible for one laborer to separate as much as a thousand pounds from the seed in the same time that five or six pounds could be cleaned by hand. That, of course, made cotton raising far more profitable, and led the planters to raise more.

(4) Value of cotton seed

The seeds have also been found to be of value, and are no longer thrown away. Oil is pressed out of them, which is used in making soap, imitation lard and butter, and a substitute for olive oil. There are from two to three pounds of seed to one pound of cotton, and since, on the average, one acre produces two hundred and fifty pounds of cotton, the value of the cotton seed from a large plantation is not small. The part of the seed

FIG. 85. — A cotton mill at Huntsville, Alabama. There are many others as large as this, and many, also, that are even larger.

that is left, after the oil is pressed out, has been found to be an excellent food for cattle, and a good fertilizer. Thus the cotton plant now produces two valuable substances besides the cotton fiber.

4. Manufacture of iron and steel goods

BIRMINGHAM has developed such extensive iron manufacturing that it is often called the "Pittsburg of the South." What special advantages has it (p. 60)? In and near this city, as at Pittsburg, the iron ore is reduced to iron in blast furnaces (p. 28) and then manufactured into steel and various other useful articles.

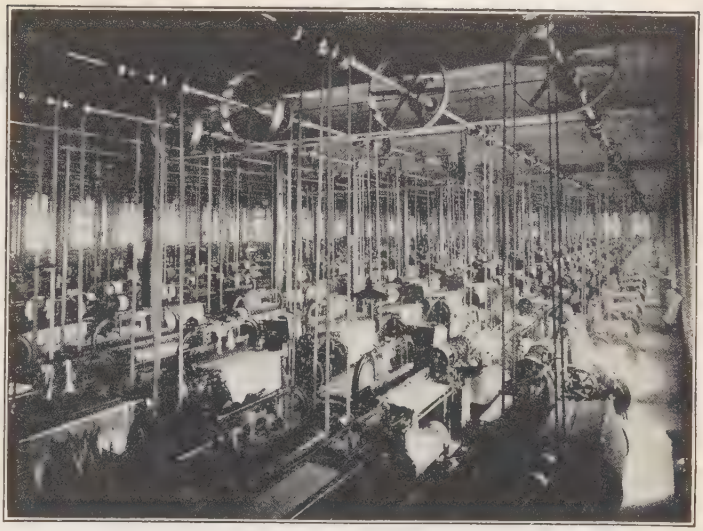

FIG. 86. — Interior of a cotton mill in the South. There are scores of machines, each one weaving the cotton fiber into cloth.

BALTIMORE, in Maryland, and WILMINGTON, in Delaware, are likewise important in this industry. To each of these cities both coal and iron can be easily shipped. Baltimore makes many kinds of iron goods; Wilmington is noted especially for the manufacture of cars, heavy machinery, and ships.

Other centers of iron manufacture are RICHMOND, in Virginia; WHEELING, in West Virginia; ATLANTA and ROME, in Georgia; LOUISVILLE, in Kentucky; and KNOXVILLE, CHATTANOOGA, and other cities in Tennessee.

5. Manufactures from the forest

Although much of the pine, oak, and other lumber is sent North, a great deal of it is made into doors, blinds, furniture, etc., at factories in MACON, MONTGOMERY, MOBILE, CHATTANOOGA, MEMPHIS, LITTLE ROCK, and ATLANTA (Fig. 88). Locate each of these cities.

FIG. 87. — A Southern cotton mill at nighttime. Power is obtained from the river.

HIGH POINT, in North Carolina, "the Grand Rapids of the South," is now one of the most noted furniture manufacturing centers of the Southern States, although a few years ago it was hardly known. There are now eighty manufacturing plants there.

The Southern forests are of value in several other ways. From them are obtained *turpentine* and *tannic acid* (p. 32). Turpentine is made from the sap of the long-leaved pine. The bark is cut through near the base of the tree, when the liquid from which turpentine is made oozes forth. Other products from the pine are rosin, tar, and wood alcohol.

FIG. 88. — A planing mill in eastern North Carolina. Notice the great piles of boards in the yard behind the mill.

6. Other manufactures in the South

Some of the other articles manufactured in the South have already been mentioned; for example, tobacco (p. 55) and sugar (p. 53). In each case the work is confined mainly to the sections from which the raw material comes. Thus, NEW ORLEANS, near the sugar plantations, has large sugar refineries. RALEIGH, DURHAM, and WINSTON-SALEM, in North Carolina, LOUISVILLE, in Kentucky, and LYNCHBURG, DANVILLE, and RICHMOND, in Virginia, manufacture tobacco.

KEY WEST, on a small coral key south of the Florida peninsula, is also noted for its tobacco factories. It is so near Cuba that the Havana tobacco, so much prized by cigar smokers, is easily obtained. There is also cigar manufacturing at TAMPA. Why there? Besides the articles mentioned, the South makes a great variety of other goods from the products of the farm, ranch, forest, and mine.

Transportation

1. Harbors

The irregular coast line of parts of the Southern States suggests that there are many harbors there. Good harbors are especially numerous in the northern part. Observe how far the waters of Chesapeake and Delaware bays extend into the land. The cities of BALTIMORE and WILMINGTON, on these bays, have much the same advantages for shipping goods that Philadelphia has. NORFOLK and RICHMOND, in Virginia, are also good shipping points.

Farther south, although the water in some of the bays is shallow, and sand bars are common, there are many good harbors; and the United States government is spending much money in deepening and improving others, so that the largest ships may enter them.

2. Rivers

The commerce of the states bordering the Gulf of Mexico is greatly aided by the Mississippi River. This mighty stream, together with its tributaries, drains a vast area, inhabited by millions of people. Name the principal tributaries, and trace them to their sources. On Figure 270 note how far up these rivers boats can go. Since transportation of goods is cheapest by water, a large amount of freight is sent up and down these waterways (Fig. 94). No wonder, therefore, that the United States government is

spending large sums of money in improving them.

In addition to the waterways, there are railways connecting all important points in these states, and reaching out to all parts of our country. These carry great quantities of freight, as well as many passengers. Among the most important railroads are the Southern, the Southern Pacific, the Louisville and Nashville, and the Baltimore and Ohio.

3. Railroads

The principal cities in the South, as in the North, are those that have grown up at the best shipping points, or at points most favorable to manufacturing.

Principal cities

BALTIMORE, the largest of all, is the seventh city in size in the United States, having over half a million inhabitants. It has an excellent harbor, far inland, in the fertile state of Maryland, near the head of Chesapeake Bay. Coal and iron can easily reach it from Pennsylvania, Maryland, and West Virginia; and, like New York and Philadelphia, it has a large amount of manufacturing and commerce. It is further noted as a center of oyster fishing and shipping. Baltimore, besides being one of our busiest, is also one of our most beautiful, cities.

1. Baltimore

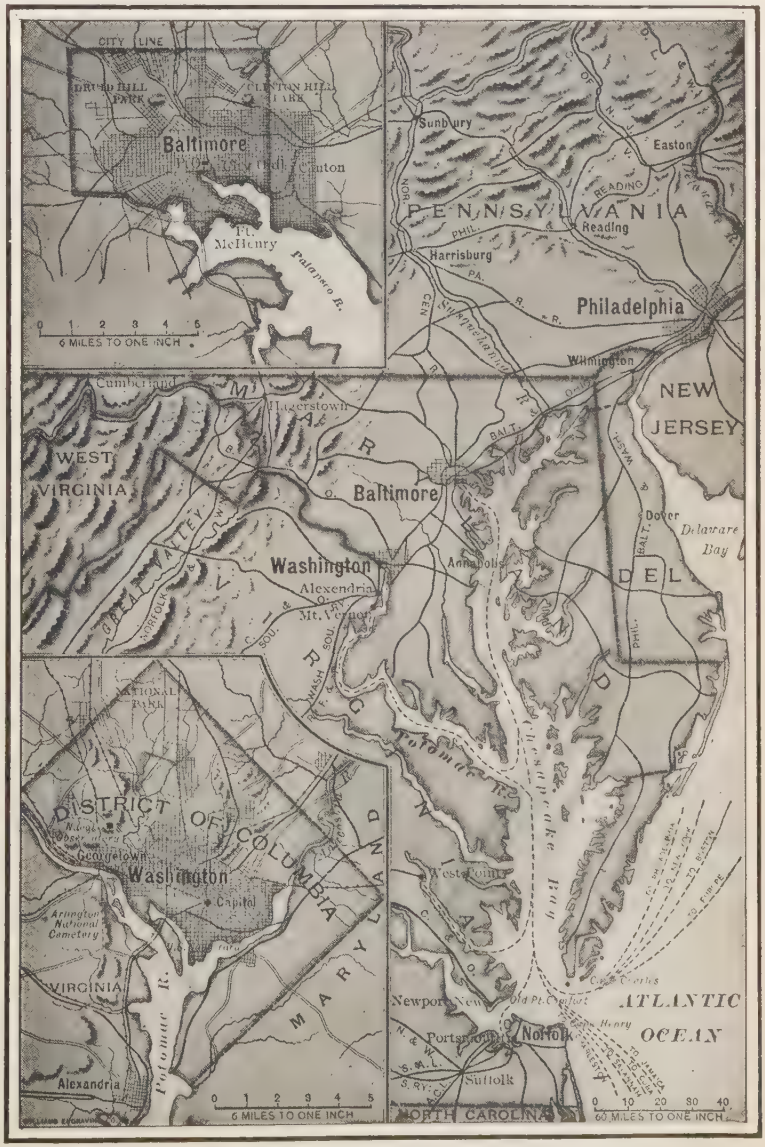

FIG. 89. — Map to show the location of Baltimore and Washington.

A few miles south of Baltimore, at ANNAPOLIS, is the United States Naval Academy, which prepares officers for the navy, as West Point prepares them for the army.

FIG. 90. — Pennsylvania Avenue, in Washington, showing the Capitol at the farther end.

Washington is unlike other cities in two respects. In the first place, since it was certain that it would one day be very large, it was carefully planned, with wide streets and many parks. For that reason it is more beautiful than most cities. In the second place, the people, unlike those of other large cities, are not chiefly interested in manufacturing and commerce. Here reside the President and his cabinet, members of Congress, and the foreign ambassadors and other representatives of the great nations of the world. Besides these there are many thousands of men and women at work in the different departments of the government. The chief buildings, therefore, are not factories and private offices, but government buildings (Fig. 91).

2. Washington

Southwest of Baltimore, on the Potomac River, is the District of Columbia, where WASHINGTON, our national capital (Fig. 89), is situated. This site was chosen for the capital long ago, when it was near the center of the settled part of the country. On Figure 235 you will find a star showing where that center is now. The District of Columbia does not form a part of any state, but is controlled directly by the national government.

WILMINGTON, on the Delaware River, is the largest city in Delaware. Explain the advantage of its location. Like

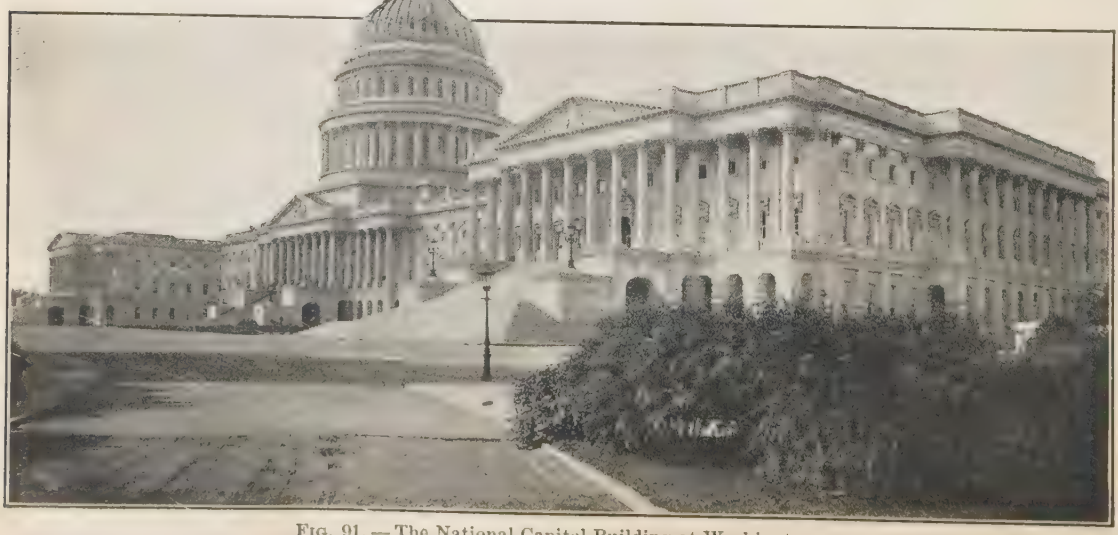

FIG. 91. — The National Capitol Building at Washington.

Camden, New Jersey, it should be associated with Philadelphia as an important manufacturing center. (See p. 42.)

3. Wilmington

The mouth of Chesapeake Bay has already been referred to as the site of important harbors. The principal city at this point is NORFOLK, a manufacturing and shipping center for cotton, lumber, iron, and other products. It is one of the leading Southern ports, and has been advancing rapidly. Near by are other important ports. Name two.

4. Cities of Virginia

The winter climate in this section is so mild that many people from the North go there for the winter season. Norfolk, Newport News, and Old Point Comfort are popular winter resorts.

The largest city of Virginia is RICHMOND, the capital of the state, at the head of tidewater on the James River. It is important as a tobacco market, and as a rapidly growing manufacturing center. What other important cities of Virginia have already been named?

Among Southern cities, the one next to Baltimore in size is NEW ORLEANS, on the Mississippi River about one hundred miles above its mouth. At this point the Mississippi makes a great bend in the form of a half circle, which explains the name *Crescent City*, commonly given to New Orleans.

5. New Orleans

(1) *Its size and location*

Large ocean vessels can reach this

FIG. 92. — Map to show location of New Orleans, Memphis, Birmingham, and Atlanta.

By courtesy of Mississippi River Commission.

FIG. 93. — The embankment, or levee, along the Mississippi, built to prevent the river from overflowing the flood plain.

below the level of the river. In fact, from Memphis southward, a large part of the land on either side of the Mississippi is a low flood plain, spreading out for many miles, and often threatened with floods. The mighty river, receiving tributaries from regions thousands of miles apart, is charged with yellow mud, which gradually sinks to the bottom as the current becomes slower toward the mouth. This has built up the bed of the river, so that at high water the floods would spread out over the low land if they were not shut in by strong walls of earth, called *levees* (Fig. 93).

(3) *Difficulties caused by the river*

In spite of their strength, these embankments sometimes give way, especially in the springtime, when the snows are melting in the North; then the destruction to life and property is appalling. At such times hundreds of men patrol the levees, night and day, to check the slightest leak. Even a hole made by crawfish may be the beginning of a destructive flood.

Because the land near the river is so low, the soil on which New Orleans stands is very damp. Indeed, in digging foundations for buildings, water is reached a short distance below the surface. On that account it has been difficult to

port, and river boats (Fig. 94) can travel from it as far up as Pittsburg on the Ohio River, and a great distance, also, up the Mississippi and Missouri rivers. On Figure 6 measure the distance from New Orleans to Pittsburg. To St. Paul. To Kansas City. How do these distances compare with those from New York to Chicago and to Duluth? Also, how far apart are Pittsburg and Kansas City? Much of the country between these cities is within easy reach of the Mississippi or some of its branches.

(2) *Its connection by water and rail*

Like New York, New Orleans is connected with the interior of the country by rail as well as by water. The Illinois Central Railway extends all the way to Chicago, running parallel to the river for much of the distance; the Louisville and Nashville reaches Louisville, St. Louis, and other cities; and the Southern Railway runs from Washington to Altanta, with connections to New Orleans; and thence the Southern Pacific Railway extends westward, across Texas, to California.

Much of the land on which New Orleans is built is frequently

FIG. 94. — Loading Mississippi River boats from the levee.

provide proper drainage. A system of drainage and sewerage has, however, been established at great expense.

(4) *People, and climate of the city*

New Orleans once belonged to France (p. 1), and one person in six in the city is of French stock. French is still spoken by some of these.

Frost seldom reaches this city, and the midwinter weather is rarely colder than the early autumn of the North. What must be the effect of this climate upon the style of houses? Also upon the presence of birds, flowers, and fruits in winter?

6. Other cities on the Mississippi River and tributaries

(1) *Louisville and Memphis*

Far up on the Ohio River is LOUISVILLE, the fourth city in size in the Southern States, and the largest in Kentucky. There are rapids in the river at this point, but a canal leads around them. Louisville is a leading center for tobacco manufacture and trade, as well as for the manufacture of iron goods and other articles.

On the Mississippi River, midway between New Orleans and Louisville, is MEMPHIS, the largest city in Tennessee. It is in the midst of the cotton and hardwood sections, and is noted for its cotton and lumber trade. It is situated on a high bluff, with the Mississippi River at its base. Give reasons why that is a favorable location.

(2) *Nashville, Knoxville, and Chattanooga*

NASHVILLE, the capital of Tennessee, has sawmills, furniture factories, and flour mills. There are more than six hundred factories in this city. Being in the midst of a splendid farming country, it is a distributing point for supplies to the surrounding towns and farms. It is also one of the educational centers of the South.

CHATTANOOGA is situated on the rugged plateau west of the Appalachians. It is on the Tennessee River (Fig. 95), at a point which makes it an important gateway. There is much manufacturing here, especially of articles made of iron and wood. Another busy manufacturing city, near by, is KNOXVILLE, which is a little smaller than CHATTANOOGA.

FIG. 95. — Moccasin Bend in the Tennessee River, as seen from Lookout Mountain. Chattanooga is situated on the river bank just to the right of the middle of the picture.

(3) *Other cities*

Find BATON ROUGE, in Louisiana; VICKSBURG and JACKSON, in Mississippi; LITTLE ROCK, in Arkansas; and GUTHRIE, in Oklahoma. These are all centers of trade in the states where they are situated. Which of them are state capitals?

7 Atlanta

ATLANTA (Fig. 96), the "Gate City," is one of the few large cities not located upon a water route. Northeast of it, for over three hundred and fifty miles, there is no easy pass across the mountains, and until 1880, in all that distance, no railway crossed the Appalachian Mountains.

FIG. 96. — A view of Atlanta.

Near Atlanta, however, there is a good route; and railways reaching westward from the Carolinas, or northern Georgia, come together here, making Atlanta a great railway center.

Owing to its favorable situation as a railway shipping point, Atlanta is the leading interior wholesale market of the South; and it surpasses all Southern cities in the number and variety of its manufactures. Among its factories are lumber, cotton, and iron mills. It is one of the most progressive cities in the country, and, like other Southern cities, is growing rapidly.

8. Seaports east of the Mississippi

The coast cities are engaged chiefly in shipping cotton and lumber, and most of them are located near the mouths of rivers, so that these goods may be brought to them by water as well as by rail. In them, also, there is important manufacturing, especially of cotton goods and lumber. Two of the best-known seaports are CHARLESTON and SAVANNAH, both long noted as shipping points for cotton (Fig 97), lumber (Fig. 78), and other goods. Charleston is the leading lumber port in the South. MOBILE, on Mobile Bay, is another important Southern port.

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FIG. 97. — Thousands of bales of cotton on one of the wharves at Savannah, ready for shipment.

In Florida are TAMPA and PENSACOLA, both with ex-

cellent harbors, and both rapidly growing. Besides its cigar manufacturing (p. 64), Tampa has a growing trade with the West Indies. It is the terminus of important railways, and is the nearest port in the country to the Panama Canal. When this canal is finished, Tampa, Pensacola and other Southern seaports will no doubt have a still greater trade.

FIG. 98. — Even the small streams and canals are used for shipping freight. Here, for example, are six thousand bales of cotton on a barge in the Houston Canal, in Texas, bound for the seacoast, to be placed on vessels for shipment to England.

9. Other cities west of the Mississippi River

GALVESTON ranks third in importance among the seaports of the Southern States; only Baltimore and New Orleans have more shipping. It is the outlet for a great amount of cotton and other goods produced north and west of it. HOUSTON, DALLAS, FORT WORTH, SAN ANTONIO, and AUSTIN are other leading cities of Texas. Locate EL PASO, the leading city in western Texas.

FIG. 99. — A view of Oklahoma City as it appeared April 22, 1889.

Oklahoma, one of our newest states, includes what was formerly called Indian Territory, a region reserved as the home of several Indian tribes. It is a state of splendid resources, and as soon as the government opened the land to settlement by white men, large numbers of settlers went there. Within a few years so many people have made their homes in Oklahoma that it has been changed from a territory to a state. It already has three thriving cities, — GUTHRIE, OKLAHOMA, and SHAWNEE; and there are other rapidly growing towns. Which is the capital?

1. What states are included in this group?
2. What can you say about their area and pop-

FIG. 100. — A view of a part of Oklahoma City in 1908.

Review Questions

ulation? 3. Name and locate the principal mountains. 4. State the principal facts about the Coastal Plains. 5. The Piedmont Plateau. 6. The Fall Line. 7. The other plains found in these states. 8. The coast line. 9. Describe the climate. 10. How does agriculture rank in comparison with the other industries? 11. Give facts showing the importance of the cotton crop. 12. What is the method of raising and marketing it? 13. Tell about the sugar industry. 14. Rice. 15. Tobacco. 16. Other farm products. 17. Ranching. 18. Lumbering. 19. Kinds of fishing. 20. The oyster industry. 21. What about coal mining? 22. The production of iron ore? 23. Oil and natural gas? 24. Building stones and clays? 35. Phosphates? 26. State the advances recently made in manufacturing. 27. How are conditions very favorable to manufacturing? 28. Show the extent of cotton manufacture. 29. Explain the value of the cotton gin; of the cotton seed. 30. Give some idea of the importance of iron and steel manufacture, and name some of the principal centers for such work. 31. State similar facts in regard to manufactures from the forest. 32. Name and locate other kinds of manufacturing in these states. 33. What advantages does the South enjoy for transportation of goods? 34. Recall the leading facts about Baltimore. 35. Washington. 36. Wilmington. 37. Cities of Virginia. 38. New Orleans. 39. Louisville and Memphis. 40. Nashville, Knoxville, and Chattanooga. 41. Other cities on the Mississippi and its tributaries. 42. Atlanta. 43. Seaports east of the Mississippi River. 44. Other cities west of the Mississippi River.

Review Questions by States

Delaware (Del.) 1. Which is the principal city in this state? 2. For what is it noted? 3. Why is it especially well situated for that industry? 4. Compare it with Albany in size. 5. The principal industries of the state are fruit raising and farming. What two reasons can you give for this fact?

Maryland (Md.). 6. In which section is farming most important? Why? 7. What products can you expect from the mountains? Why? 8. Notice how branching Chesapeake Bay is. Why is it so irregular? 9. What influence must this have upon the number of oysters found there? 10. Why is Baltimore favorably situated for receiving coal and iron from Pennsylvania? 11. For canning fruit, vegetables, and oysters? 12. What might be the effect upon the growth of Baltimore if the land should rise, so that Chesapeake Bay disappeared and the Susquehanna flowed through it? 13. Compare the size of Baltimore with that of Boston.

Virginia (Va.). 14. In what other state was the capital the most important city? 15. Locate the fertile Great Valley that is found in Virginia (Fig. 89). 16. What kinds of agriculture are carried on here? 17. What river separates Virginia from Maryland? What river crosses the middle of Virginia? 18. Compare Richmond in size with Albany. 19. How does Virginia rank in iron production (Fig. 261)? 20. Of what importance are the branching bays that enter Virginia? 21. If goods are to be shipped across the ocean from Kentucky (see map, Fig. 6), is it nearer to send them to Norfolk or to New York?

West Virginia (W. Va.). 22. What disadvantage is it to this state that it has no seacoast? 23. How could we reach the ocean by water from West Virginia? 24. Where is the largest city? Why there? 25. How does this city compare in size with Pittsburg? 26. Should you expect to find much forest in this state? Why? 27. Much farming? 28. Coal, iron, petroleum, and natural gas are found here. Of what value are these?

North Carolina (N.C.). 29. Which part is mountainous? Name and locate the highest peak east of the Mississippi River. 30. What are the surface features of this state? 31. Which cities are mentioned in the text? Where is each? For what is each important? 32. What capes do you find on the coast? 33. What are the leading industries? (See Figs. 239–265.)

South Carolina (S.C.). 34. Describe the surface features of the state. 35. What are the principal industries? 36. What city is on the Fall Line? On the seacoast? For what is each important? 37. Which city is largest?

Georgia (Ga.). 38. Where are the mountains? 39. The plains? 40. What are the industries? 41. Trace the Fall Line across the state (Fig. 64). What cities are on it? 42. Why is Atlanta situated where it is? 43. How does it compare in size with the largest city in each of the three states just mentioned? 44. How does it compare in size with

New Orleans, Buffalo, and Providence? 45. Name the two seaports. What do they ship?

Florida (Fla.). 46. What about the relief of this state? 47. Explain the irregular southern coast and the Florida Keys. 48. Describe the climate. How does this influence the crops? 49. What Florida cities were mentioned, and how is each important? Locate each. 50. What mineral product comes from Florida?

Alabama (Ala.). 51. Trace the Fall Line across this state. What cities are situated on it? 52. Where is Mobile? How is it important? 53. Describe the location and industries of Birmingham. 54. What crops are raised in Alabama? 55. What cities are engaged in manufacturing cotton? 56. In lumber manufacturing? 57. Compare Mobile in size with Atlanta and Birmingham.

Mississippi (Miss.). 58. Why is there no city on the coast? 59. In what way can the products of the state be shipped by water? 60. From what cities? 61. What are the products? 62. Why no mining? 63. What about the extent of cotton raising in this state (Figs. 243, 244)?

Louisiana (La.). 64. State the reasons for the great importance of New Orleans. 65. Why has it a better location than Mobile or Charleston? 66. Compare it in size with those cities. 67. With Boston and Baltimore. 68. What large tributary enters the Mississippi in Louisiana? 69. What crops are raised in Louisiana? Why there?

Texas (Tex.). 70. Where are the mountains? 71. Where are the forests? Why there? 72. What are the industries on the western plains? 73. What city lies in the western part? Why there? 74. What cities are in eastern Texas? 75. For what is Galveston noted? 76. Compare it in size with New Orleans and Charleston. 77. Texas is how many times as large as Pennsylvania? (For area, see table in Appendix.) 78. Add together the areas of all the Northeastern States, and compare the total with the area of Texas. 79. Compare the population of Texas with that of Massachusetts. (See Appendix.)

Oklahoma (Okla.). 80. What about the climate of the western part? 81. What crops are raised here? 82. Into what river does the state drain? 83. Name and locate the chief cities.

Arkansas (Ark.). 84. What large river enters the Mississippi in this state? 85. There is much forest in Arkansas; in what part (Fig. 77)? 86. Is Arkansas in the cotton belt? (See Fig. 69.) 87. The capital is the largest city. Compare it in size with Memphis. Why is it less favorably situated than that city?

Tennessee (Tenn.). 88. Where are the mountains? The plains? 89. Name two cities among the mountains. For what is each important? 90. State facts about two other cities in Tennessee. 91. Which city is the largest? (See Appendix.) 92. What large rivers drain the state? 93. What are the leading industries in this state?

Kentucky (Ky.). 94. Why should this state be better adapted to tobacco raising than Ohio? 95. Of what importance is the limestone of Kentucky? 96. Where are most of the cities? Why there? 97. What products from Kentucky are mentioned? 98. Which is the largest city? For what important? 99. What other cities are mentioned?

Suggestions

1. Draw an outline map of these states. Add the principal rivers and cities, and the state boundaries. 2. Represent this group of states in sand, showing the mountains and plains. 3. Make a collection of articles manufactured from cotton, and add them to the school collection. 4. Make a collection of different kinds of wood grown in the Southern States. 5. Raise some cotton and rice in the schoolroom. 6. Name other advantages that the mild climate of the South brings; for instance, in regard to clothing; coal for heating houses; and kinds of houses. Do you see any disadvantages in such a climate? 7. How are the people of New England and those of the South dependent upon each other in the work that they do? 8. What two letters stand for *District of Columbia?* 9. Name and locate the capital of each state in the Southern group. 10. Write the abbreviations for each of these states.

4. The Central States

Map study

1. Name the states in this group. 2. Which of them border on the Great Lakes? 3. Name the Great Lakes. 4. Which of these lakes is highest above the level of the ocean? How can you tell? How does the name of this lake suggest that it lies highest? 5. By what river do the waters of these lakes reach the ocean (Fig. 2)? 6. Remembering what was said about the Erie Canal (p. 36), show how goods can be shipped by water from Duluth and Chicago to New York City. 7. Measure the distance on the map from Duluth to New York City. 8. Name the three principal rivers in the Central States. Trace each. 9. How do these rivers compare in length with the largest in the Northeastern States? 10. Trace the divide between the Mississippi Valley and the valley of the Great Lakes. 11. Which state drains entirely into the Great Lakes? 12. Which states drain mainly into the Ohio River? Into the Mississippi River? Into the Missouri River? 13. Which state drains partly into the Arctic Ocean? 14. Where are mountains found in these states?

Area and population

The area of these twelve states is somewhat smaller than that of the sixteen Southern States just studied, but it is more than four times that of the Northeastern States.

A century ago there were scarcely any people living here, excepting Indians and a few scattered trappers. Now there are more than twenty-six million persons, or more than live in either the Northeastern or the Southern States. There are also many large cities, including Chicago, the second largest in the United States, and St. Louis, the fourth in size.

Let us see what has attracted so many people here, what their chief occupations are, and how these compare with the occupations in the sections already studied.

Agriculture is the most important of these occupations. Indeed, this is one of the best farming sections in all the world. Millions of persons in Europe and in our coast cities look to these states for their bread, meat, and other food, as they look to the South for cotton.

Agriculture
1. Its importance

There are several reasons for this. In the first place, throughout almost the entire section the land is a level plain, or, at most, gently rolling.

2. Conditions favorable to farming
(1) *Great amount of level land*

In western South Dakota and in southern Missouri, low mountains rise above the plains. There is a hilly region around the western end of Lake Superior, in Michigan, Wisconsin, and Minnesota; and in eastern Ohio there is also hilly land, for the Appalachian Plateau extends into this state. What are the names of the mountains of the Central States?

With the exception of these small areas of mountains and hilly lands, most of the region is a vast level tract. This is very different, as you remember, from most of the land of the Northeastern States. The level surface makes it possible to cultivate large tracts of land easily (Fig. 104), as in the Southern States. The soil, also, is very deep and fertile.

(2) *Absence of forests and bowlders*

In most parts of the Northeastern and of the Southern States forests were once extensive; indeed, there is still much forest left, as we have seen. In many sections of New England weeks of hard labor were required to remove the trees from a single acre, and to drag away or bury the bowlders.

Over a large part of the Central States, however, such work was unnecessary, for there were no trees or rocks.

CENTRAL STATES
(WESTERN SECTION)
Scale of Miles
0 25 50 100 150 200
Cities with over 1,000,000 CHICAGO
Cities with 500,000 to 1,000,000 St. Louis
Cities with 100,000 to 500,000 St. Paul
Cities with 25,000 to 100,000 Topeka
Smaller Places Canton
Capitals with less than 25,000 JEFFERSON CITY
Capitals ⊙
Other Cities ⊙
Williams Engraving Co., N.Y.
DOMINION OF CANADA
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
MINNESOTA
IOWA
MISSOURI
ARKANSAS
WISCONSIN
ILLINOIS
MICH.
LAKE SUPERIOR
Minneapolis
St. Paul
Duluth
Superior
Sioux City
Des Moines
Council Bluffs
Omaha
S. Omaha
Lincoln
Nebraska City
Topeka
Kansas City
St. Joseph
Wichita
Joplin
Springfield
St. Louis
E. St. Louis
Quincy
Springfield
Cape Girardeau
Memphis
Little Rock
Pine Bluff
Oklahoma City
Muskogee
Dubuque
Cedar Rapids
Clinton
Davenport
Waterloo
Madison
La Crosse
Sparta
Galesburg
Monmouth
Peoria
Kewanee
Rhinelander
Port Arthur
Moorhead
Grafton
Park River
Lake Levils
Willmar
Fairmont
Spencer
Algona
Charles City
Independence
Cedar Falls
Boone
Grinnell
Iowa City
Atlantic
Creston
Centerville
Kirksville
Trenton
Chillicothe
Brookfield
Louisiana
Columbia
Warrensburg
JEFFERSON CITY
Lawrence
Ottawa
Osawatomie
Garnett
Iola
Fort Scott
Nevada
Lebanon
Salem
Bonne Terre
De Soto
Belleville
Poplar Bluff
Westplains
Monett
Galena
Independence
Arkansas City
McPherson
Hutchinson
Abilene
Manhattan
Leavenworth
Atchison
Concordia
McCook
Holdrege
Hastings
Beatrice
Yankton
Canton
Vermillion
Elk Point
Mitchell
Brookings
Flandreau
Watertown
Huron
Pierre
Lake Harvey
Black Hills
Mississippi R.
Missouri R.
Rainy R.
Red Lake
Virginia
Hibbing
Ft. Madison
Burlington
Fairfield
Kirkville
Macomb
Canton
Pekin
Lincoln
Jacksonville
Litchfield
Alton
Granite City
Belmont
Jonesboro
Paragould
Helena
Hot Springs
Ft. Smith
Eureka Springs
Canadian River
Arkansas River
Mississippi River
Longitude West from Greenwich
100°
95
90

FIG. 101.

CENTRAL STATES
(EASTERN SECTION)
Scale of Miles
0 25 50 100 150 200 250
CHICAGO
Cleveland
Detroit
Aurora
Capitals with less than 25,000 FRANKFORT
Capitals
Other Cities
DOMINION
MINNESOTA
WISCONSIN
IOWA
ILLINOIS
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSOURI
ARKANSAS
MISS.
ALABAMA
GEORGIA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
PENN.
NEW YORK
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
LAKE ONTARIO
Superior
Duluth
Paul
Stillwater
Eau Claire
Stevens Point
Green Bay
Oshkosh
La Crosse
Madison
Milwaukee
Racine
Sheboygan
Kalamazoo
Battle Creek
Grand Rapids
Lansing
Detroit
Saginaw
Bay City
Flint
Toledo
Cleveland
Akron
Canton
Youngstown
Pittsburg
Wheeling
Columbus
Dayton
Cincinnati
Newport
Louisville
Lexington
Evansville
Indianapolis
Terre Haute
Springfield
Decatur
Bloomington
Peoria
Rockford
Elgin
Aurora
Joliet
Davenport
Cedar Rapids
Clinton
Quincy
Keokuk
Kirksville
Moberly
Louisiana
Columbia
Mexico
Fulton
St. Louis
East St. Louis
Cape Girardeau
Westplains
Poplar Bluff
Paducah
Mayfield
Hopkinsville
Madisonville
Princeton
Bowling Green
Russellville
Clarksville
Nashville
Knoxville
Mt. Mitchell
Asheville
Charlotte
Winston-Salem
Chattanooga
Memphis
Little Rock
Argenta
Helena
Corinth
Holly Springs
Huntsville
Atlanta
Augusta
Columbia
Lynchburg
Roanoke
Huntington
Parkersburg
Fairmont
Cumberland
Toronto
Buffalo
Rochester
Erie
Jamestown
Dunkirk
Meadville
Oil City
Altoona
Washington
Cumberland Gap
Middlesboro
Somerset
Mammoth Cave
Cumberland
Tennessee
Williams Engraving Co., N.Y.
Longitude West from Greenwich

FIG. 101.

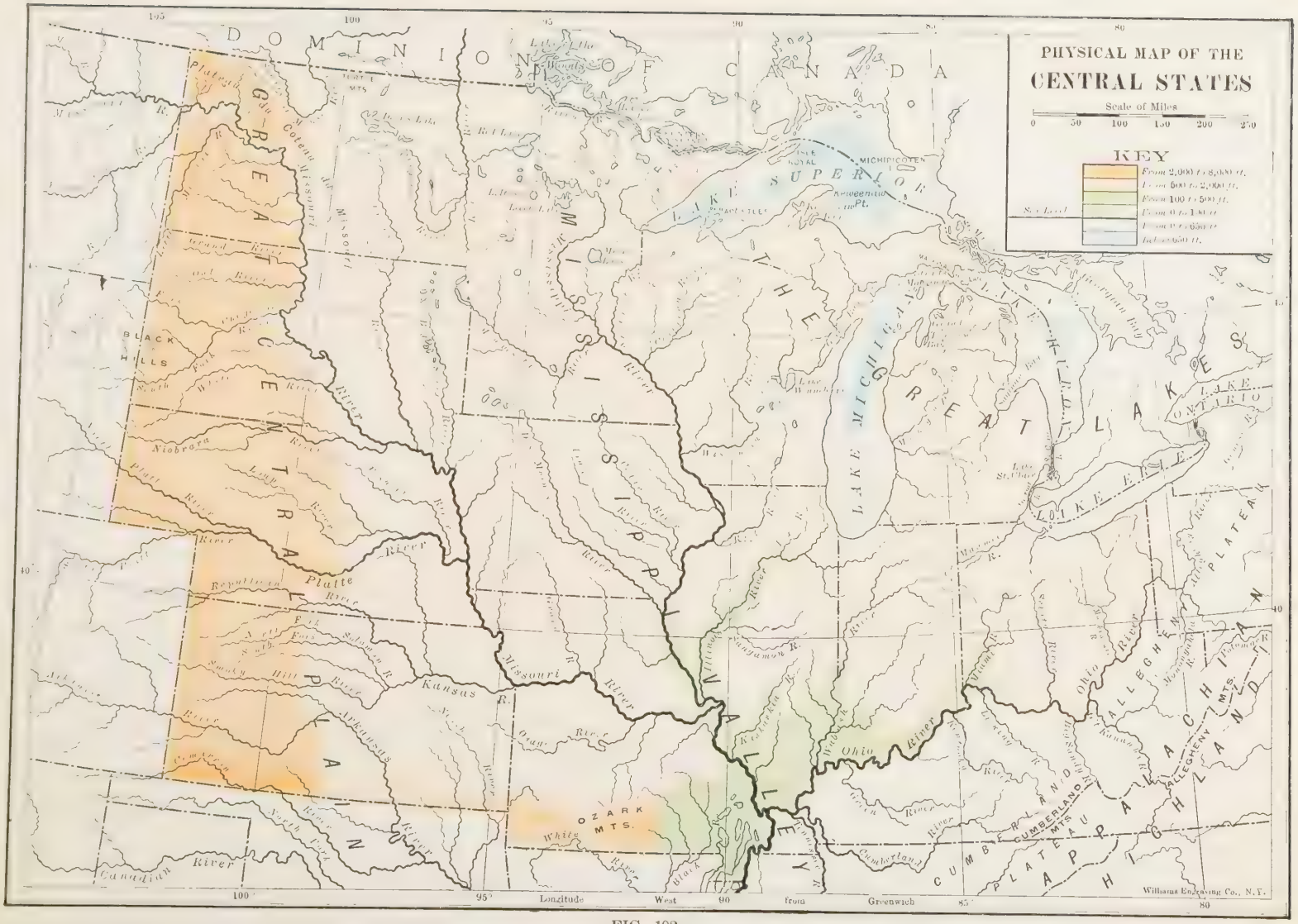
PHYSICAL MAP OF THE
CENTRAL STATES
Scale of Miles
0 50 100 150 200 250
KEY
DOMINION OF CANADA
GREAT PLAINS
LAKE SUPERIOR
LAKE MICHIGAN
GREAT LAKES
LAKE ONTARIO
LAKE ERIE
MISSISSIPPI VALLEY
ALLEGHANY PLATEAU
CUMBERLAND PLATEAU
ALLEGHANY MTS.
CUMBERLAND MTS.
OZARK MTS.
BLACK HILLS
ISLE ROYAL
MICHIPICOTEN
Keweenaw Pt.
Platte River
Kansas R.
Missouri River
Ohio River
Canadian River
Niobrara River
Longitude West from Greenwich
Williams Engraving Co., N.Y.

FIG. 102.

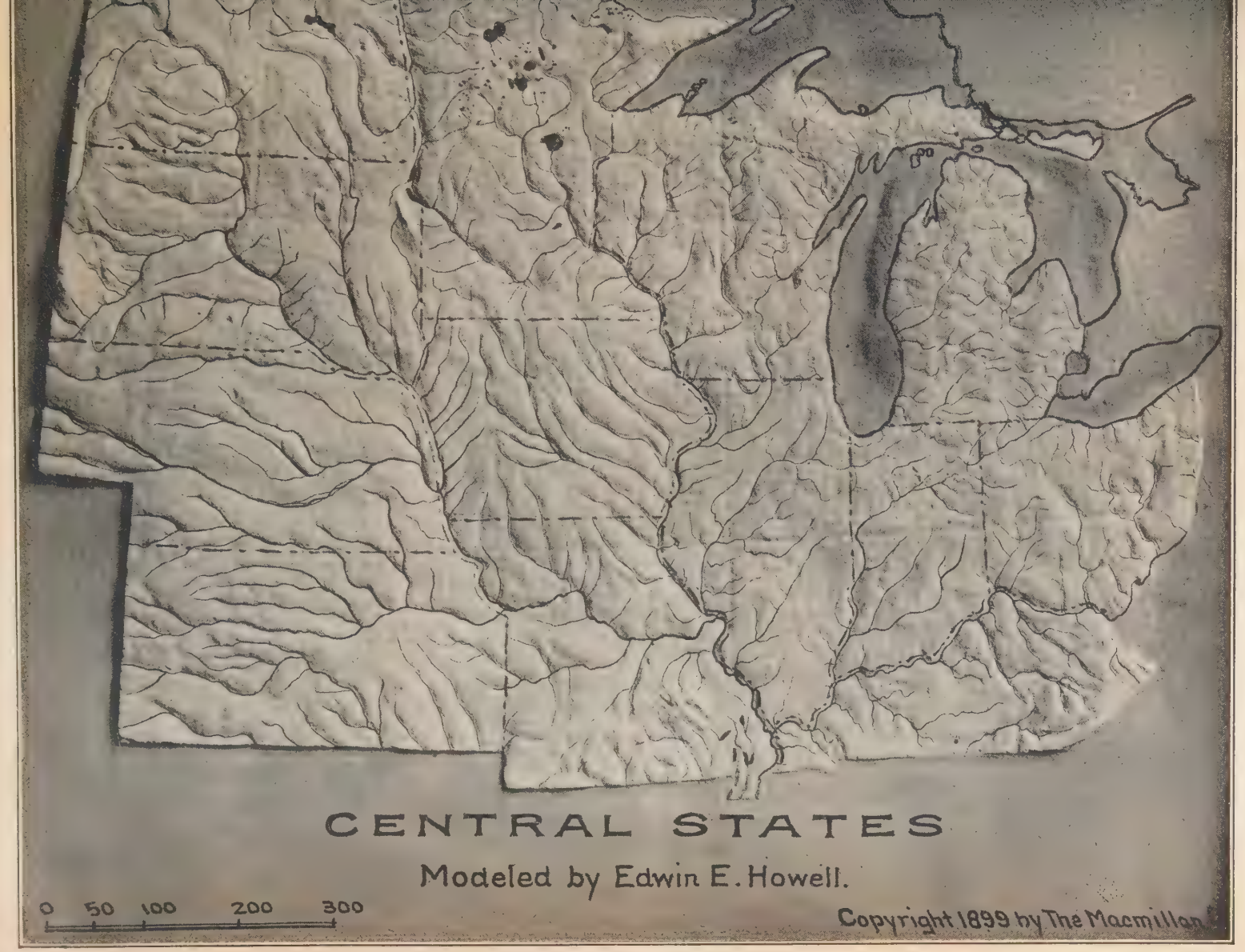
CENTRAL STATES
Modeled by Edwin E. Howell.
0 50 100 200 300
Copyright 1899 by The Macmillan

Fig. 103.

FIG. 104. — The very level, fertile plain in the Red River Valley of North Dakota, one of the finest wheat regions in the world. For hundreds of miles there is just such level land as this.

It was *prairie* land, covered only with luxuriant grass, and all ready for plowing and planting. A good crop could be raised the first season. This fact had much influence in causing the rapid settlement of these states.

(3) *Sufficient heat and rain*

While this section lies north of the states last studied, and has a more severe climate, the summers are long and hot enough to raise many kinds of crops. Also, while the rainfall is less than that farther south (Fig. 276), it is sufficient for farming throughout almost the entire section. This fact is suggested by the great number of rivers. The rain is brought from the Gulf of Mexico and the Atlantic Ocean by the winds which frequently blow from the south and east.

Only on the very western border is there too little rain for agriculture without irrigation. The reason for this lack of rain in the extreme west is that the winds lose most of their moisture before they reach the western part of North and South Dakota, Nebraska, and Kansas. There is, however, enough rain for the growth of nourishing grass for cattle, sheep, and horses.

3. A farm in central Ohio

(1) *The house and its surroundings*

The farms vary greatly in size, from a few acres to several thousand; but the greater part contain from 80 to 160 acres. In the main, they resemble the one in Ohio that is here described. On this Ohio farm of 160 acres is a house in which the family lives, with a barn near by for horses, milch cows, and hay, and with sheds near it for storing grain and farming implements.

FIG. 105. — A farmer feeding his chickens and turkeys.

A windmill in the rear

of the house keeps the milk house well supplied with cold water, and also fills the water troughs in the barnyard. Near the house is an orchard (Fig. 106) of apple, peach, and pear trees, with a few rows of berry bushes in one part, and a chicken house in another (Fig. 105). Here chickens are raised, and supply all the eggs that are needed, with some to sell. On one side of the front yard are a few beehives, and back of them, between the orchard and the barn, is a garden of vegetables. Still back of that are several pigpens, in which hogs are fattened for home use, and also for the market.

(2) The fields, and what is done with their crops

Farther away from the house are fields in which at least three or four different kinds of crops are raised. Every farmer in that region expects to raise corn, — perhaps sixty acres of it, — some grass for grazing and for hay, and wheat or some other kind of grain.

FIG. 106. — A farmer and his family in the orchard near the house.

After these crops are harvested, they are either sold or fed to stock — horses, cattle, hogs, or sheep — upon the farm. The latter plan is often followed, chiefly because it pays better to fatten stock and sell it, than to sell the crops themselves. There are generally several good milch cows on the farm, which supply the family not only with fresh milk and butter, but furnish some cream or butter to sell.

(3) Contact with neighbors

Since there are only three houses in sight of this farmhouse, and there is no store or post office within two miles, the farmer and his family may not meet other persons for several days at a time, although they often see friends driving by. In the busiest season, from spring till fall, they make few trips to town. However, they have a telephone by which they can talk with neighbors, and with friends and merchants in town, while the postman brings the mail to their doors.

Some persons would not care for such a life as this, because it is too lonesome, and there is too much hard work connected with it. But this farmer enjoys it greatly, because he likes to take care of his stock, to work in the soil, and to watch his crops grow. In addition, he is able to raise most of his own food, and his whole life is more independent than that of persons in a town or city.

(4) Attractions of such a life

4. Indian corn, or maize

(1) Extent to which it is raised

Corn (Fig. 107) is raised in most of the states of the Union, and you have already learned how important it is in the South. It is in the Central States, however, that we find the

FIG. 107. — View in a cornfield in Nebraska. Notice how very tall the corn grows in this fertile soil.

greatest amount. The *corn belt* of the country (Fig. 239) extends from Ohio to central Kansas and Nebraska, with smaller quantities raised north, south, east, and west of it. Farmers within this belt usually expect to devote from one third to one half of their land to corn; therefore, in traveling across these states in summer, one sees cornfields in every direction.

The seed is planted in rows in the springtime. Soon the little stalks appear above ground, and grow rapidly during the hot summer months, until they reach a height of from seven to ten feet (Fig. 107). In order to keep the soil loose, and kill the weeds, the ground between the rows is plowed when the corn is young; but as it grows higher, the shade of its leaves protects the soil from both drought and weeds.

(2) *How it is cultivated and harvested*

A cornfield usually presents the most beautiful appearance in July, when the corn "tassels out" (Fig. 107). The plants then entirely hide the ground from view, and the rich green stalks, with their long, slender leaves, bend to the breezes in the most graceful manner.

If the stalk is to be used as fodder for cattle in winter, it is cut before frost, when the kernels on the cob are still somewhat soft and milky. If left until after frost, the grain hardens, and then the harvest season begins. Men drive into the fields in wagons and tear the husks from the ear, spending day after day at that kind of work.

Corn is put to many uses. Much that is raised is fed to cattle and hogs, as already stated. Some is made into hominy or breakfast foods, or into corn meal. Starch is another product of corn. It is also very extensively used in the manufacture of whisky in *distilleries*. There are many distilleries in ST. LOUIS, LOUISVILLE, PEORIA, and other cities within the corn belt.

(3) *Its uses*

FIG. 108. — Two ears of corn, the one on the left with the husk turned down to show the kernels of corn on the cob.

Wheat, like corn, is produced in all the Central States, as well as in other parts of the country (Fig. 241). It is an especially important product in Kansas, Ohio, and Indiana; but the section which at present is most noted for wheat is the valley of the Red River of

5. Wheat

(1) *Extent of its production*

the North (Fig. 104). In this valley there is a broad plain, including western Minnesota, eastern North and South Dakota, and a portion of Manitoba, which is one of the finest wheat regions in the world.

The land here is almost as level as the surface of the sea; it is so level, in fact, that after a rain the water stands in sheets on the fields. It is necessary to build the roads a foot or more above the surrounding land and to make ditches on either side; otherwise they would be muddy much of the time. In every direction there is nothing to break the view except an occasional farmhouse with a few trees around it. Over this open plain the wind sweeps with terrific force, somewhat as upon the ocean; and in winter fierce, blinding snow squalls, or *blizzards*, are not uncommon.

FIG. 109. — A farmer threshing wheat in the harvest season. On the left is an engine which furnishes power to run the threshing machine where the men are standing.

One may ride on the train northward toward Winnipeg all day long, and see scarcely a crop besides wheat. Most of the farms are of moderate size, but some are enormous. For example, one farm in North Dakota contains over thirty thousand acres. How many square miles is that?

(2) *How cultivated on a large farm*

This farm is divided into six parts, with farm buildings upon each. To prepare the ground, from fifteen to twenty men at a time plow and sow the seed on each division. One takes the lead, another follows close behind; then come a third, a fourth, and so on. The grain is harvested on a similar plan. One hundred and twenty men, and three hundred horses, are employed in the planting season, and three hundred men during the harvest. Since one acre usually produces from fifteen to twenty bushels of wheat, an immense amount of the grain is obtained from this single farm.

The great quantity of wheat produced in the Red River Valley and the neighboring region has helped the growth of the cities of MINNEAPOLIS, ST. PAUL, and DULUTH. It has also caused the development of cities in the midst of the wheat fields, notably FARGO in North Dakota and SIOUX FALLS in South Dakota. Since most of the grain is shipped to the East or South, it has influenced the growth of scores of other cities along the Great Lakes, the Mississippi River, and even on the Atlantic coast. State how this can be.

(3) *Influence of wheat on growth of cities*

Each farm in the Central States usually has a small orchard, like that on the Ohio farm; but fruit raising is a *special* industry in those sections where the climate and soil are favorable, as in

6. Fruits and vegetables

(1) *Fruits*

the neighborhood of the Great Lakes. The immense area of water in these lakes, which do not freeze over in winter, makes the summers cooler, and the winters warmer, than they would otherwise be. This is one reason why the grape belt of western New York (p. 17) extends westward along the shores of Lake Erie far into Ohio.

The Michigan peninsula, which has Lake Michigan on the west, and Lakes Huron and Erie on the east, is also a noted fruit-raising region. Here great quantities of peaches, apples, and other fruits are produced. With what part of the Atlantic coast can this fruit region be best compared (p. 17)?

While these regions are especially noted, the raising of fruits is common in all the Central States. Among the kinds raised are peaches, grapes, apples, pears, cherries, plums, and berries.

(2) *Vegetables*

Vegetables of many kinds, such as sweet corn, potatoes, turnips, beets, cabbages, tomatoes, peas, beans, lettuce, pumpkins, squashes, and celery are also raised in all of the Central States. Some of these are grown for use at home, some for canneries, and some for sale in the cities. The fact that there are so many cities makes truck farming profitable, as is the case in New England.

7. Tobacco

Tobacco is another valuable farm product in the Central States (Fig. 246). While it is raised in many sections, the greatest quantity comes from Missouri, which ranks with Virginia, Kentucky, North Carolina, and Tennessee (p. 55) as a leading tobacco state. St. Louis is an important tobacco market. What other cities have the same industry (pp. 55 and 64)?

Fig. 110.—Sheep grazing in a pasture in a hilly part of the Central States, in Missouri.

8. Domestic animals

Some domestic animals are raised on almost every farm. Among these the most important are horses, cattle, sheep, hogs, hens, and turkeys. Some farms, however, are mainly devoted to one or a few kinds (Fig. 111). For example, in the more hilly sections, where it is not easy

to cultivate grain, cattle and sheep are numerous (Fig. 110), and dairying is important. Ohio is one of the foremost sheep-raising states. More horses are raised in Illinois than in any other state in the Union, more hogs in Iowa, and more milch cows in Iowa than in any other state except New York.

9. Other farm products

Great quantities of oats and barley are raised in the Central States. The former is a common food for horses, and the latter is largely used in the manufacture of beer. The great breweries, found in every large city, consume immense quantities of barley in order to obtain the *malt* which is needed in making beer. In CINCINNATI, ST. LOUIS, and MILWAUKEE, beer making is one of the important industries.

Another farm crop in some sections is flax. From the bark of the flax stem a fiber is obtained which is used in making linen, while linseed oil is made from the flax seed. It is chiefly for the latter purpose that flax is raised in the United States. Hops, used with barley in making beer, are also raised; and rye and buckwheat are produced on many farms. Sugar beets are now cultivated in many states, and they supply a part of the sugar consumed in our country.

Finally, a vast amount of hay is grown; some of it is fed to farm animals, but much is sold in the cities for the use of the horses there. The hay crop is one of the most valuable in the Central States.

10. Farming by irrigation on the Great Plains

Passing westward from the fertile valley of the Red River of the North, one finds the farmhouses decreasing in number, and the country becoming more and more arid, until, finally, in western North Dakota, there is almost no farming without irrigation. At the same time, the plains gradually rise higher and higher, until, near the base of the Rocky Mountains, an elevation of fully a mile above the sea is reached. This arid plateau, extending from Canada to southwestern Texas (p. 50), is commonly known as the *Great Plains*.

FIG. 111. — A scene on a chicken farm in Southern Missouri.

(1) *Meaning and extent of the Great Plains*

FIG. 112. — An artesian well supplying water for use in irrigation in western United States.

The soil is excellent, and where irrigation is possible, there are fine farms.

(2) *Irrigated sections, and their products*

In many places the streams furnish water for irrigation; in others, water rises to the surface when wells are driven into the earth. Such wells, from which the water often gushes forth as in a fountain, are called *artesian wells* (Fig. 112). The water comes from the rock layers underground, and by its help much land is now cultivated which a few years ago was of little use.

Every year the amount of land cultivated in this section is increasing; and now that the government is building reservoirs to store the waters that run off through the rivers in spring, there will be still more land under irrigation. These irrigated farms produce the same crops as other parts of the Central States. Crops that will grow in a dry climate are also being introduced (called "dry farming"), and this is another reason why farming is increasing here.

11. Ranching

(1) *Its extent*

Most of the arid region of the Great Plains is unsuited to farming. For that reason there are few towns and no large cities, as you can see on the map (Fig. 101). The western third of North and South Dakota, Nebraska, and Kansas, as well as the Great Plains farther west, is given over mainly to *cattle ranching* (Fig. 113).

This industry is carried on in much the same way throughout all parts of the arid West. In western North Dakota, for instance, there is little water except in the widely separated streams, and there are almost no trees except along the stream banks. Since the ranchman must have both water and wood, he locates his house, sheds, and stockades, or *corrals* (Fig. 114), within

(2) *Location of the ranchman's house and corrals*

FIG. 113. — Cowboys and cattle on a ranch in western United States.

easy reach of these two things. If there is no neighbor within several miles, it is all the better, for his cattle are then more certain to find abundant grass.

Few fences are built, partly because most of the region is owned by the government, not by ranchmen. Very often they own only the land near the water; but this gives them control of the surrounding land, for it is of no use to any one else if his cattle cannot reach the water. Another reason why fences are not common is that it is necessary for the cattle to roam far and wide in their search for food. The bunch grass, upon which they feed, is so scattered that they must go a long distance each day to find enough to eat.

(3) *Why few fences*

A single ranchman may own from ten to twenty thousand head of cattle, and yet they may all be allowed to wander about upon public land, called "the range" (Fig. 113). Usually they keep within a distance of thirty miles of the ranch house; but sometimes they may stray a hundred miles away.

Fig. 114. — Cattle in a corral on a western cattle ranch.

Twice a year there is a general collection, or *round-up* (Fig. 115), of cattle, — the first round-up coming in May or June, and the other early in the fall. One object of the first is to brand the calves that have been born during the winter.

(4) *Object of first round-up, and how accomplished*

Since there are few fences, cattle belonging to ranches that are even a hundred miles apart become mixed during the winter; and those in a large herd may belong to a score of different ranchmen. Each cattle owner has a certain mark, or *brand* (Fig. 116), in the form of a letter, a cross, a horseshoe, or some other figure, which is stamped upon every calf with a hot iron.

Fig. 115. — A round-up on the Great Plains. All the cattle in the front of the picture belong to one ranchman; those in the distance to another.

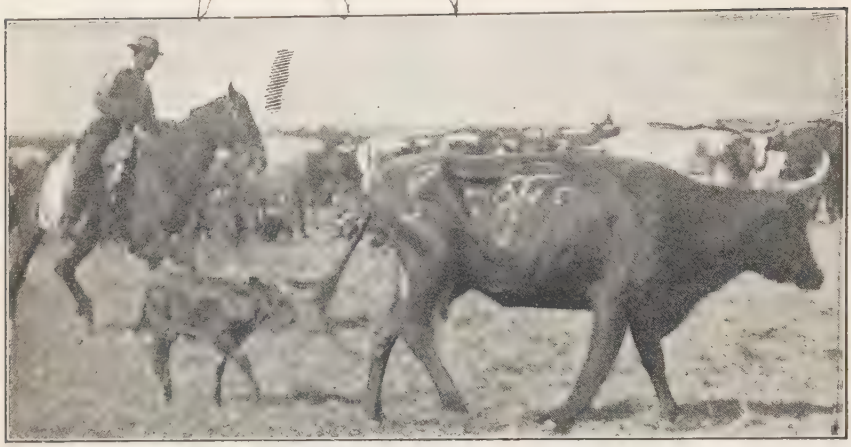

FIG. 116. — This animal bears the brand of the owner. The cowboy is trying to catch the calf that is following its mother; and when he does, he will place the same brand on it.

A round-up, which lasts several weeks, is planned by a number of ranchmen together. A squad of perhaps twenty cowboys, with a wagon and provisions, a large number of riding horses, or "ponies," and a cook, go in one direction; and other wagons, with similar "outfits," set out in other directions. Before separating in the morning, the members of a squad agree upon a certain camping place for the night, and they then scour the country to bring the cattle together, riding perhaps sixty or eighty miles during the day.

Each ranchman knows his own cattle by the brand they bear; and since the calves follow their mothers (Fig. 116), there is no difficulty in telling what brand shall be placed on them. After branding the calves, each ranchman drives his cattle homeward, to feed during the summer within a range of a few dozen miles of their owner's home.

(5) *Second round-up, and what follows*

The second great round-up is similar to the first, except that its object is to bring together the *steers*, or male cattle, and ship them away to market; it is therefore called the *beef round-up*. A ranchman who owns twenty thousand cattle may sell nearly half that number in a season. As the steers are collected, they are loaded upon trains and shipped to distant cities to be slaughtered (p. 93).

Very often the cattle have found so little water, and such poor pasturage, that they have failed to fatten properly, and must be fed for a time before being slaughtered. This may be done upon irrigated fields near the rivers in the ranch country; or the cattle may be sent for this purpose to farms further east, as in Kansas, Missouri, Iowa, and Nebraska.

(6) *Life of the ranchman*

The lives of ranchmen and cowboys are interesting and often exciting, the greater part of each day being spent in the saddle (Fig. 117). They are so far separated from other people that they must depend upon themselves much more than most people do. For instance, a ranchman must build his house, kill his beef and dress it, store his ice, raise his vegetables, do his blacksmithing, find his fuel, and even teach his children if they are to receive a school education. He

FIG. 117. — A cowboy and his pony. The rope in his hand is his lariat, with which he lassoes the cattle.

affords a good illustration of the pioneer life which was so common in early days.

Lumbering

A large portion of the Central States produces little lumber: first, because much of the land never had any forest; and second, because much land that was once wooded has now been cleared. The timber cut from it has been used for building, or other purposes, and the cleared sections have become productive farm land.

The largest area that was covered with timber, when first discovered, was in Michigan, Wisconsin, and Minnesota, near the Great Lakes. Here the land is more hilly than in most parts of the Central States, and it was clothed with dense forests.

In these forests were many kinds of trees belonging to the north, especially the evergreens, such as hemlock, spruce, white pine, and cedar. There were also some hard woods, such as oak, birch, and maple.

Although much of the timber has been removed (Fig. 118), lumbering is still carried on in this section, as well as in some other parts of the Central States.

The excellent water power in the Mississippi River, at MINNEAPOLIS (Fig. 136), early led to the building of sawmills there, and made that city famous for lumber. There are also a considerable number at DULUTH, in Minnesota, and at SUPERIOR, which is just across the state line in Wisconsin.

Fishing

Since the Central States have no seacoast, all the oysters, and other sea food eaten in this section, must be brought from the Atlantic, or the Pacific, or the Gulf coast. Thus, while the people of these states supply meat and grain for those living in other parts of the country, they, in turn, depend upon others for some of their food.

The Central States, however, are not entirely dependent upon the sea for their fish. In the rivers there are some excellent fish, quite different from those in the ocean; and in the lakes there are still other kinds. There is, therefore, considerable fishing here, especially on the Great Lakes; but the fishing industry is by no means so important as in the groups of states already studied.

FIG. 118. — A sawmill in Wisconsin. The logs are floated from the forest by the river, and sawed into lumber in the mill.

Mining

1. Coal

(1) *Its wide distribution*

Coal, the most important fuel, is mined in almost all the Central States. Illinois produces most, ranking next to Pennsylvania among our states. West Virginia ranks third and then comes Ohio. Large quantities are produced also in Indiana, Iowa, Kansas, Missouri, and Michigan. There is so much coal in this section, and it is found throughout so large an area, that it is easy to obtain fuel for manufacturing in almost every part. (See Fig. 259.)

Pennsylvania produces two kinds of coal, anthracite and bituminous, but the Central States have only the latter. It is bituminous coal however that is used in making coke; and because coke is necessary in iron manufacture, the coal of these states is especially important. In some places the coal lies near the surface, like rock in quarries, and then the mining is very simple; in others it is buried so deep that long shafts must be sunk to reach it.

(2) Kind of coal, and method of mining it

FIG. 119.—A view in the oil fields of Kansas. There is an oil well under each derrick.

When oil and natural gas were first discovered in New York and Pennsylvania, it was supposed that they did not exist elsewhere; but they have since been found in many places. Name some of them (pp. 23 and 60). Both oil and gas are obtained in several of the Central States, especially Ohio, Illinois, Indiana, and Kansas. Many farmers, whose soil is no better than that of their neighbors, have suddenly become rich by the discovery of oil or natural gas in the rocks far beneath the surface (Fig. 119). In fact, these substances are so abundant in some places that towns, like FINDLAY in western Ohio, have sprung up there like mushrooms.

2. Oil and gas *(1) Where found*

The way in which gas and oil are formed, and the uses to which they are put, have already been described (pp. 23–24).

In many places in the Central States natural gas is in common use, furnishing both light and heat in the houses, and fuel in the factories. It is a very cheap fuel, for, after the hole is bored into the earth, it costs almost nothing to produce the gas. The main expense is the cost of the pipes through which it passes.

(2) Cheapness of gas as a fuel

Once Pennsylvania was the chief iron-producing state, having both coal and iron ore; but some years ago explorers discovered enormous beds of iron ore near the western end of Lake Superior. In some places the ore is so soft that, like gravel, it can be dug out with steam shovels, and very often it is so near the surface that the mines are open pits. In other places the mining is done underground. That is the case,

3. Iron ore *(1) The Lake Superior district*

for example, at ISHPEMING, in northern Michigan (Fig. 120).

This Lake Superior district is now the leading iron-producing center of the world. It includes parts of three states, — Michigan, Wisconsin, and Minnesota, — the most important being Minnesota (Fig. 261), and the least important Wisconsin. These three states together produce fifty times as much iron ore as Pennsylvania, and three quarters of all the iron ore mined in the entire country. The enormous development of mining in this region has caused numerous towns and cities to grow up here.

(2) *Why the ore must be transported, and from what ports*

There is no coal in this iron district. Therefore, in order that the ore may be reduced to the metal, either coal must be carried to the iron mines, or else the ore must be moved to the coal. The latter has proved the cheaper. Accordingly, hundreds of boats sail every year from the lake ports of DULUTH, SUPERIOR, ASHLAND, and MARQUETTE, loaded with ore for the manufacturing centers along the lakes.

(3) *How it is loaded, and where sent*

Fortunately the iron mines are near waterways. If it were necessary to haul the heavy ore a long distance by rail, the expense might be so great as to check its production. As it is, however, the ore is mined, loaded upon cars, and sent over short lines of railway to the lake shore.

Great ore docks (Fig. 121), or piers, reaching out into deep water, have been built to hold the ore. Railway tracks are laid upon the docks, and the trains run out upon them to dump their contents quickly into bins. On a single pier there are scores of bins, which together hold enough ore to fill several large vessels. When a vessel is to be loaded, it comes up to the pier; then a door at the bottom of a bin is opened, allowing hundreds of tons of ore to slide out. After this, the next bin is emptied, and in this way the vessel is filled in a few hours.

As the ore must reach a point where coal is easily obtained, it is taken to such lake ports as CHICAGO, DETROIT, TOLEDO, CLEVELAND, and BUFFALO. Notice how close to these cities the coal beds extend (Fig. 259). From the lake ports some of the ore is carried by rail to PITTSBURG, and to many other places in the midst of the coal fields.

FIG. 120. — At work in an iron mine at Ishpeming, Michigan.

4. Copper ore

(1) *Uses of copper*

Another metal found in the Central States is copper, which is valuable in many ways. It is one of the metals used to make bronze, and also brass; but of late years a new and even greater demand for this metal has arisen. Electricity passes through copper more easily

than through other common metals; copper is, therefore, the best material for trolley wires, for the wire of long-distance telephones, and for wire used in electric lighting. Since the use of electricity is rapidly increasing, there is a growing demand for copper.

(2) *Where the ore is found*

The Indians and early explorers found pieces of copper on the surface of the ground in northern Michigan. Later it was discovered in the rocks beneath the soil. These copper-bearing rocks are found on the small peninsula that extends into Lake Superior near HOUGHTON. Copper mines were started there long ago, and for many years it has been one of the leading copper-mining regions of the world.

FIG. 121.—The great ore docks on the shores of Lake Superior. Trains loaded with ore run out onto these docks and dump their ore into large bins, from which vessels are loaded.

(3) *How copper is obtained from the ore, and where sent*

Some of these mines are very deep, one of the shafts reaching to a depth of about a mile. When the ore is drawn to the surface, it is found mixed with so much rock that it must first be crushed to a powder under powerful hammers, or *stamps*. Then water is run over it, in order to carry away the bits of rock and leave the heavier particles of copper. Even after this, some foreign substances are still mixed with the copper, and these must be removed before the metal is fit for use. In order to remove them, the copper is next placed in a large *smelter* and melted. The pure copper is allowed to run out of the furnace and cool in bars to be shipped away (Fig. 122). Among the foreign substances is a little silver, which is carefully saved.

As in the case of iron ore, the copper is shipped to points along the lakes, and elsewhere, by water or by rail. Much of it goes to the metal manufactories in New England (p. 30). Name some goods that must be shipped *into* this copper section, instead of away from it. Why?

(4) *Population dependent on these mines*

The largest of the copper mines are near together, and so many men are employed in obtaining the ore, and in getting out the pure metal, that large towns have grown up near the mines. Within a few miles of the most important mines are several towns, the largest being CALUMET. Many of the people living in these towns are miners and families of miners; but there must be, of course, merchants, physicians, teachers, ministers, and people of other occupations; and

they all depend for a living upon the precious copper buried far beneath the surface.

5. Other mineral products

(1) *Building stones, sand, and clay*

There is an abundance of *building stones* in the Central States. Among these are sandstone and limestone, which are shipped in all directions for building purposes. Limestone is also used in iron smelting and in making Portland cement. In addition, there are slates and granites in the hilly and mountainous sections, as there are in New England (p. 22).

Several states produce much *sand*, which is melted and made into window glass, bottles, and other objects. Clay of various kinds, used in making bricks and tiles, is abundant in all the states.

(2) *Lead, zinc, and gold*

Lead and zinc are mined in many places, as at JOPLIN, Mo., and then sent to furnaces, where the pure metals are separated from the ore. A large part of our supply of lead and zinc is obtained from Missouri. What are some of the uses of these metals? Of what use should you think this lead was to the early pioneers?

Gold is mined in the Black Hills in the extreme western part of South Dakota.

(3) *Salt*

Much salt is obtained in the Central States, especially in Michigan. This state produces more salt than any other in the Union. New York is second, Ohio third, and Kansas fourth.

Manufacturing

The Central States produce an abundance of raw materials, and there is also much coal oil and gas for fuel, while in some places there is water power. Naturally, therefore, this section has become a great manufacturing region.

Since this is our leading wheat-producing region, the greatest flour mills in the country are located here. Because of the wheat and other grains, breakfast foods are made in enormous quantities, and there are many distilleries and breweries.

1. From farm products

The small fruits and vegetables, such as berries, beans, peas, tomatoes, and sweet corn support a great canning industry. Tobacco adds another kind of manufacturing, and the sugar beet still another.

FIG. 122. — Bars of copper on the dock at Houghton, Michigan. These are to be carried away by the large lake steamer.

A very important industry is the production of meat. Cattle, sheep, and hogs are slaughtered by the tens of thousands, and the meat and other animal products are shipped to all parts of the country, as well as to Europe. Butter, cheese, lard, soap, hides, wool, and other animal products, besides meat, are prepared in this section.

While many of these farm products are shipped to other regions for manufacture, many of them are consumed in this way in the Central States. For example, there are large woolen mills and shoe factories here, as well as in New England.

Near the forests, both along the streams and on the shores of the Great Lakes, the manufacture of furniture and other articles from wood is extensive. Farming being the greatest industry, there is a demand on all sides for wagons, plows, mowing machines, threshing machines, and other farm implements. Naturally, therefore, they are manufactured here in great numbers.

2. From forest products

Chicago is especially noted for the manufacture of furniture; and on many of the rivers of Minnesota, Wisconsin, and Michigan, where there is abundant water power, there are sawmills, furniture factories, and planing mills. Some of these are at Oshkosh in Wisconsin, and at Saginaw, Bay City, and Grand Rapids in Michigan. Grand Rapids is especially noted for the manufacture of school desks, office desks, chairs, tables, and other kinds of furniture. Many of the cities are noted for the manufacture of farm implements.

Metal manufacturing in the Central States is quite as important as in the states along the Atlantic coast, and the industry is rapidly growing.

3. From mineral products

(1) *From metals*

The manufacture of iron ore into iron and steel goods occupies an enormous number of men in hundreds of cities and towns. Some of the largest iron and steel plants in the country are in Ohio, Illinois, and Indiana. Among them are the great steel works at Gary, Indiana. The manufacture of copper goods is another extensive industry, and many products are made from lead and zinc.

Fig. 123. — A crowd of workmen leaving a factory at the close of the day, at Dayton, Ohio.

Crude oil is made into many products, as in the Northeastern States. Name some of these products (pp. 23–24).

(2) *From oil, clay, and limestone*

Much of the deep soil in the prairie states is a clay which is useful in the manufacture of bricks. As in other sections of the country (p. 30), there are many brickyards, especially near the large cities. From this same kind of clay, flowerpots, drainpipes, and other articles are made. During recent years, when drainage of farm land has become common, the manufacture of tile for that purpose has developed into a great industry. Many a small town has a tile factory.

A very high grade of pottery, known as Rookwood ware, is manufactured in CINCINNATI. The best of clay is needed for this, which in this case must be brought from a distance. The first step in making a vase is to wet a lump of clay so that it may easily be molded. Then it is placed upon a potter's wheel, where it is whirled rapidly around while a man molds it with his hands. In a very few minutes he changes the shapeless lump into a delicately formed vase. It must then be baked, and after the baking, flowers or other ornaments may be painted upon it. The surface is finally covered with a substance which, when baked, produces a *glaze*. One of the beauties of the Rookwood ware is the peculiar color of the glaze, which is a dark or yellowish brown.

In Indiana, Kansas, Illinois, Michigan, and other states of this section, Portland cement is made from limestone. Pennsylvania produces the most cement, but several of the Central States produce large amounts.

Transportation of goods

The handling of so many raw materials and manufactured products leads to extensive commerce. Transportation of bulky goods, such as ores, coal, and wheat, is especially important in a region where the coal and iron ore are so widely separated, and where far more wheat is raised than can be consumed.

The highways used for this purpose are of two kinds; (1) those that are natural to the country, and (2) those that have been made by man. The first may be called *natural*, the second *artificial*.

Of the natural highways, the Great Lakes are far the best, being so large that they are properly called *inland seas*. They form, in fact, the most remarkable inland waterway in the world, for large vessels can sail upon them, and they reach into the very heart of a fertile and productive country. From Duluth to Buffalo there is only one place where navigation is interfered with.

1. The natural highways

(1) *The Great Lakes*

FIG. 124.—The "Soo" Canal. Boats going west pass through the canal on the right; those going east pass through the canal on the left. In the very front of the picture is the gate of a lock.

That is at the outlet of Lake Superior into Lake Huron, where there are some rapids. Here a broad canal, large enough for the Great Lakes vessels, has been dug. It is called the *Soo Canal* (Fig. 124), after the city SAULT STE. MARIE, located at this point.

What canal connects Lake Erie with Lake Ontario (Fig. 51)? Why is a canal there necessary? (Fig. 17.)

(2) *The rivers*

While the Great Lakes outflow toward the east, the Mississippi River and its two large tributaries, the Missouri and Ohio, flow toward the south. These great

FIG. 125.—Shipping on the Chicago River. This was the first port at Chicago, but now breakwaters built out into the lake make a large harbor.

waterways are highways of travel for boats. Every one of the Central States is reached either by a lake, highway, or by a river.

2. The artificial highways

Among the artificial highways are roads and canals; but the railroads are especially to be noted. The surface of the land is generally so level that railway lines have been easily built; and the country is so fertile, and has become so fully settled, that it is crossed by railroads in all directions. Most of the great railroad systems that cross the continent from east to west pass through either Chicago or St. Louis.

Principal cities along the Great Lakes

Since the Central States have no ocean coast, we naturally find the principal cities along the Great Lakes and the three great rivers, where it is possible to ship goods by water. Let us first consider those along the Great Lakes.

1. Duluth and Superior

At the western end of Lake Superior there is a fine harbor, one side being in Minnesota, the other in Wisconsin. Upon this harbor are two cities, DULUTH and SUPERIOR, which together have a population of over a hundred and twenty thousand. The chief products of this vicinity are iron, lumber, and wheat, which are shipped eastward in immense quantities from these two ports. Owing to the nearness of these cities to the Minnesota and Dakota wheat fields, there are enormous elevators for storing grain, and flour mills for grinding it into flour.

2. Chicago

Locate Chicago. At this point the small Chicago River empties into Lake Michigan (Fig. 125), forming a small harbor, on which a fort was located in early times.

(1) *Advantages of this site*

As the West developed, this site proved to be a most favorable one; for whenever a railway was built from the East to the Northwest, it was necessary for it to pass around the southern end of Lake Michigan. As the city grew in size, more railways were built to it *because* it was large; and now they

FIG. 126.—A busy Chicago street crowded with wagons.

approach it from the east, west, north, and south (Fig. 127). Thus Chicago has become a great railway center.

The city is an important shipping point for grain, because it lies near the most productive grain region in the world. It is also within easy reach of extensive coal fields, while lumber and iron ore are readily brought to it by boat. These facts have caused Chicago to have a wonderful growth. In the year 1840 there were but 4470 inhabitants; but to-day it has a population of 2,185,000, making it the second city in size in the New World. It has long since outgrown its small natural harbor, and a much larger one has been made by building long breakwaters out into the lake.

Chicago is not only a great grain market, but is also the most important meat market in the world. All the grazing states of the West ship stock to this point, and in the city itself nearly a square mile is taken up by the Union Stockyards (Fig. 128). In these are large sheds for the various kinds of stock, pens with high fences, and troughs for food and water (Fig. 129). Trainloads of cattle, hogs, and sheep are unloaded here every day. The work employs about thirty thousand men.

(2) Meat packing and related industries

The packing houses send out a number of products. By far the most important is meat, for most of the cities of the East are furnished with fresh meat from Chicago and other

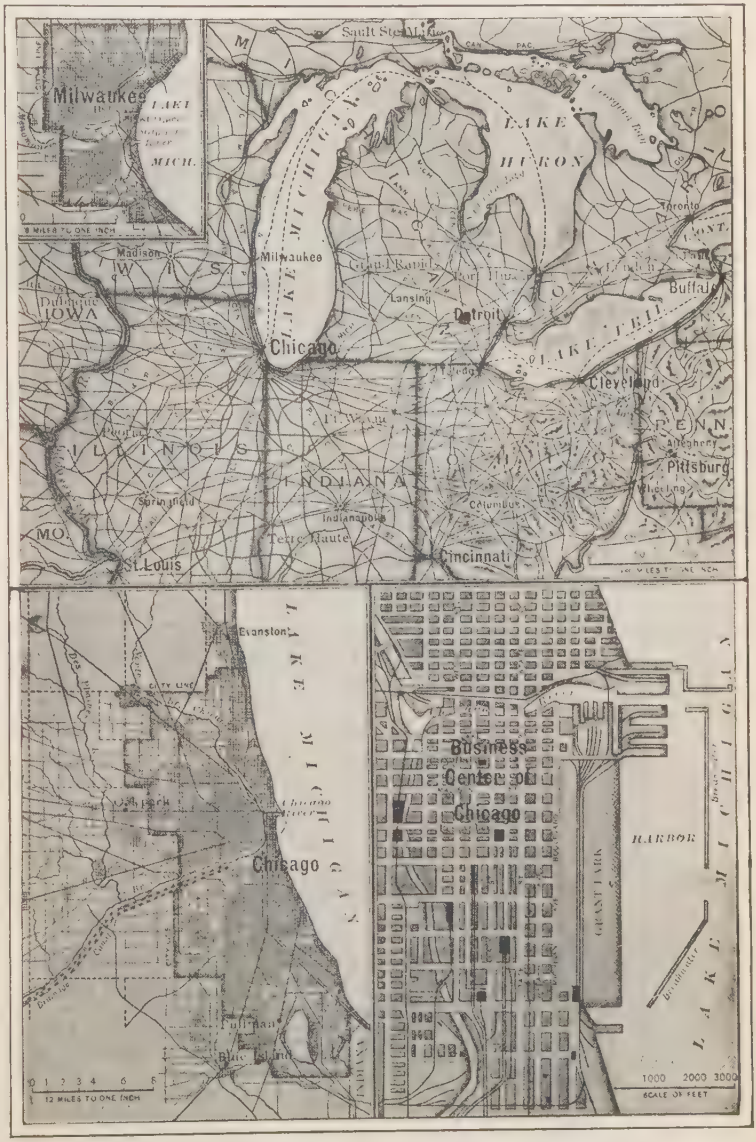

FIG. 127. — Map showing the location of Chicago and Milwaukee.

FIG. 128. — A general view of the stockyards at Chicago.

western cities. Both live cattle and fresh meat are sent in large quantities to Europe also. It may be several weeks after the meat is prepared for food before it reaches the table; yet all this time it is kept fresh by the use of ice. Special refrigerator cars are built for the sole purpose of carrying it.

Besides the meat that is sold fresh, much is canned. The fat of the hog is made into lard, and not a little beef fat is made into imitation butter, called oleomargarine. Many of the bones are burned and used in the manufacture of sugar (p. 54); and the horns and hoofs are of use in making gelatin and glue. The hides are made into shoes, gloves, harnesses, and other leather goods. Nothing is wasted in the packing business; even the bristles of the hog are saved and made into brushes; and the hair from the hides of cattle is valuable in making plaster.

(3) *Other manufacturing*

There are many companies engaged in the making of iron and steel goods; one of them alone, the Illinois Steel Company, employs ten thousand men. An enormous amount of furniture is made, and the manufacture of farming implements is also very extensive. Chicago is the home of the National Harvester Company, which controls the manufacture of farming implements in most parts of the country. A single one of its plants sends out about three hundred thousand farm machines every year. The

FIG. 129. — A view of a small part of the stockyards (Fig. 260), showing cattle in the pens.

Pullman Car Works have made as many as ten thousand freight cars in one year, besides several hundred passenger cars. As in New York (p. 38) and other great cities, the making of clothing is one of the leading industries. These are but a few of the many kinds of manufacturing in this great city.

Like other very large cities, Chicago has much difficulty in providing transportation for the people of the city. Street cars are one important means, and many steam railways carry passengers to and from the heart of the city. There are elevated railways (Fig 130), also, as in New York, and underground roads, as well. But unlike those in New York, the underground roads are used mainly for hauling freight.

(4) *Transportation and sewage*

FIG. 130.—A view of an elevated railway in Chicago at the point known as the Union Loop.

Another great difficulty was the proper care of the sewage of the city. For a long time it was poured into Lake Michigan; but as the drinking water was taken from the lake, this became very dangerous to the health of the people. In order to carry it away, an immense drainage canal has been dug (Fig. 127), connecting Lake Michigan with the Illinois River, and thus setting the current toward the Mississippi and the Gulf of Mexico. This drainage canal, which is wide and deep enough for boats, may in time develop into a ship canal. In that case, large ships may reach Chicago from the Gulf of Mexico, as they now do from the Gulf of St. Lawrence. What effect would this have upon the city?

3. Milwaukee and Racine

Other large cities along the lakes are engaged in many of the same industries as Chicago. MILWAUKEE (Fig. 127), the largest city in Wisconsin, deals extensively in grain, lumber, and leather, packs much pork, and manufactures great quantities of flour and machinery. It is a busy and rapidly growing city. Locate RACINE, a smaller but important lake port.

4. Detroit

DETROIT (Fig. 131), the largest city in Michigan, is also on the Great Lakes water route. The name is a French word for *strait.* Why is that name suitable? All vessels going east or west must pass this city; and some of the railway trains from eastern Canada to the West cross the strait at this narrow point or pass beneath it in a tunnel. Being at the crossing of important railway and steamship lines, Detroit has become a great shipping and manufacturing center. It deals in grain, wool, pork, and ores from the West, and makes iron and steel goods.

5. Cleveland and Toledo

On the lake shore in Ohio the chief cities are TOLEDO and CLEVELAND (Fig. 131). The former has extensive flour mills and iron manufactories; and the latter, which is

a much larger city, being even larger than Cincinnati, Detroit, or Buffalo, has an important trade in grain, lumber, and ore. The situation of Cleveland near the coal and petroleum fields has led to the extensive manufacturing of machinery, furniture, and other goods. Much petroleum is refined here, and the building of ships for the lake commerce is an important industry.

Locate the principal cities of the Central States that are situated on or near the Great Lakes. Named in order of size, they are Chicago, Cleveland, Detroit, Milwaukee, Toledo, Duluth, and Superior. In what state is each of them? On which lake? Through what lakes would one go in passing from Cleveland to Chicago? From Cleveland to Duluth?

FIG. 131. — Map showing the location of Detroit, Cleveland, Cincinnati, and Pittsburg, and their relation to the trade routes of the Central and Northeastern States.

Principal cities along the rivers

The largest city on the rivers, corresponding to Chicago on the lakes, is ST. LOUIS, the fourth in size among our cities (Fig. 135). It has a very favorable position in the center of the Mississippi Valley, on the Mississippi River near the mouths of its two largest tributaries. The railway bridges across the Mississippi at this point have also had great influence on the growth of the city. It is an important shipping point both by water and by rail.

1. St. Louis

(1) *Its location*

Like Chicago, St. Louis is one of our leading markets for grain and live stock; but, being so far south, it handles Southern products also, especially

(2) *Its industries*

FIG. 132. — Shipping on the Great Lakes. The peculiar ship in the foreground is called a whaleback.

FIG. 133. — A railway bridge across the Missouri River above St. Louis.

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FIG. 134. — A general view of St. Paul, with the Mississippi River in the foreground. The state capitol of Minnesota is on the hill at the left.

cotton and tobacco. Besides this, it is a noted mule and horse market, and manufactures immense quantities of tobacco, beer, flour, boots, shoes, clothing, and iron and steel goods.

At one time Chicago and St. Louis were almost the only noted markets for grain and live stock in the West; but in later years several other cities have become prominent. Two of these are the "twin cities," MINNEAPOLIS and ST. PAUL (Fig. 135), both on the Mississippi River. The latter (Fig. 134), the capital of Minnesota, is a trade center. From it the products of the West are sent east and south, while farm implements, furniture, clothing, and other articles are distributed throughout the region.

2. St. Paul and Minneapolis

MINNEAPOLIS, only ten miles distant, is situated at the Falls of St. Anthony, which furnish splendid water power (Fig. 136). Its location in the midst of the wheat region, together with its water power, has caused Minneapolis to become the leading flour-producing center of America. In the city are many sawmills, grain elevators, and flour mills.

Smaller cities on the Mississippi River between this point and St. Louis are WINONA, in Minnesota; LA CROSSE, in Wisconsin; DUBUQUE and DAVENPORT, in Iowa; and QUINCY, in Illinois. Find each.

3. Other cities on the Mississippi

FIG. 135. — Map showing the location of St. Louis, Kansas City, Omaha, Minneapolis, and St. Paul.

Each is important either for lumber, grain, or farming implements, or for all three combined.

FIG. 136.—The St. Anthony Falls at Minneapolis—some of the factories are seen in the distance.

4. Cities on and near the Missouri

The leading cities on the Missouri River are KANSAS CITY (Fig. 135), in western Missouri, and OMAHA, in Nebraska. Each is surrounded by a fertile farming country, which produces much grain. Each is also a market for cattle, sheep, and horses, raised near by and in the arid region farther west. Being so near the ranch country, the meat-packing industries in both of these cities are gaining rapidly each year. Note that there is also a Kansas City in Kansas, a city of 100,000 population, in which all of the packing houses are located.

On the river above Kansas City is ST. JOSEPH, in Missouri; and below it is JEFFERSON CITY, the capital of that state. Farther west, in Kansas, are TOPEKA, the capital, and WICHITA. Southwest of Omaha is LINCOLN, the capital of Nebraska; and across the river, in Iowa, is COUNCIL BLUFFS, a center for the manufacture of farming implements. Several cities northwest of this point are chiefly important as trade centers. Find some of them on the map. Locate DES MOINES, the capital of Iowa. Of what advantage is its central position in a level farming country?

FIG. 137.—River boats on the Ohio at Cincinnati.

5. Cities in the Ohio Valley

Pittsburg and Wheeling, on the upper Ohio River, the one in Pennsylvania and the other in West Virginia, owe their importance largely to coal and iron, and to the fact that river boats can reach them. Farther down the river is CINCINNATI (Fig. 131), the largest river port in the state of Ohio, and a busy shipping and manufacturing center (Fig.

137). Besides pottery (p. 91), this city manufactures large quantities of iron, machinery, and clothing. Across the river, in Kentucky, are COVINGTON and NEWPORT (Fig. 131), both almost a part of CINCINNATI, as Jersey City is almost a part of New York.

Farther north and east, in Ohio, are DAYTON and SPRINGFIELD, both noted for the manufacture of farm machinery. DAYTON is engaged in manufacturing of many kinds, including the making of cars. COLUMBUS, the capital of Ohio, is an important trade center, and manufactures many carriages and wagons.

EVANSVILLE, the largest river port in Indiana, is principally engaged in the manufacture of flour, machinery, and leather goods. INDIANAPOLIS, the capital and metropolis of Indiana, is in the midst of a fine farming district. Like Columbus, it is a railway and trade center, and handles much grain, lumber, and furniture, and many farming implements.

Locate the principal cities on the large rivers, and tell for what each is important. In order of size, they are St. Louis, Cincinnati, Minneapolis, Kansas City, St. Paul, and Omaha. In which state, and on what river, is each of these? How could you go by boat from Cincinnati to St. Paul? From Cincinnati to Omaha? On what rivers would you travel in each case, and through, or on the border of, what states?

Review Questions

1. What can you say about the area of these states? 2. The population? 3. The importance of agriculture? 4. What three conditions have been very favorable to farming? 5. State facts about the farm in Central Ohio; (1) the house and its surroundings; (2) the fields and their crops; (3) the neighbors; (4) the attractions of such a life. 6. To what extent is Indian corn raised in these states? 7. How is it cultivated and harvested? 8. Name several of its uses. 9. What Central States are noted for wheat production? 10. Describe the method of cultivating it on a large farm. 11. Explain its influence on the growth of many large cities. 12. What fruits are grown in the Central States? In what sections? 13. What vegetables are common? 14. Which states are noted for tobacco? 15. Tell about the domestic animals. 16. Other farm products of these states. 17. Farming by irrigation on the Great Plains. 18. Where is ranching the principal industry? Why there? 19. What can you say about the location of the ranchman's house and corrals? 20. Why are few fences needed? 21. Tell about the two roundups. 22. Describe the life of the ranchman. 23. Give some facts about lumbering in these states. 24. Fishing. 25. The distribution of coal. 26. The kind of coal, and method of mining it. 27. Where are oil and gas found? 28. State the importance of the Lake Superior district for iron ore. 29. Why is it necessary to transport the ore a long distance before manufacturing it into iron? 30. Name and locate several points to which it is taken. 31. What are some of the uses of copper? 32. Where in these states is copper ore found? 33. How is the copper obtained from the ore? Where is it sent? 34. Show that a large population is dependent on these copper mines. 35. Tell about other mineral products in the Central States. 36. What manufactures from farm products are very important in these states? 37. What manufactures from forest products? 38. From ores? 39. From oil, clay, and limestone? 40. Explain the value of the Great Lakes for the transportation of goods. 41. The value of the rivers. 42. Give a few facts about the importance of the railroads, also. 43. Explain the importance of Duluth and Superior. 44. The advantages of the location of Chicago. 45. Tell about meat packing and related industries in Chicago. 46. Other manufacturing in that city. 47. The difficulties of transportation and sewage there. 48. State the principal facts about Milwaukee and Racine. 49. Detroit. 50. Cleveland and Toledo. 51. St. Louis. 52. St. Paul and Minneapolis. 53. Other cities on the Mississippi River.

54. Cities on and near the Missouri River. 55. Cities in the Ohio Valley.

Review Questions by States

Ohio (O.). 1. Name the four largest cities (see Appendix). State the advantages of each location. 2. What other cities of Ohio are mentioned? For what is each important? 3. Why is there much manufacturing in this state? 4. What other industries are mentioned in the text? 5. Examine the maps (Figs. 239–249) in order to see what crops are especially important in Ohio. 6. In what ways are the cities of Ohio dependent upon New Orleans and New York? How are the latter cities dependent upon those in Ohio? 7. Of what service to Cleveland and Toledo is the Erie Canal? 8. Draw a sketch map of Ohio like that of Maine (p. 46). As you study each state, do the same.

Indiana (Ind.). 9. Examine the maps (Figs. 239–249) to see what crops are produced in Indiana. 10. What minerals are found here? 11. Which is the largest city? For what noted? 12. What other cities are mentioned? 13. What are the industries of Indiana? 14. Of what importance was the fact that a large part of this section was treeless when discovered?

Illinois (Ill.). 15. Examine the maps (Figs. 239–249) to see what crops are especially important. 16. Why is there much manufacturing in Illinois? What kinds are carried on? 17. Of what value is the lake to manufacturing? 18. State the reasons why Chicago has developed so greatly. 19. What other cities are mentioned in this state? For what is each important? 20. Which of the four states so far reviewed is the largest? Which smallest (see Appendix)?

Michigan (Mich.). 21. What lakes does this state border? Of what advantage is this? 22. What disadvantage can you see in the fact that water separates the lower from the upper peninsula of Michigan? 23. Ice stops canal traffic in winter. What effect must this have? 24. Into what waters does this state drain? Contrast this drainage with that of the other states. 25. Where are most of the large cities? Why there? 26. For what is each important? 27. Give the reasons for the location of Detroit. 28. What are the important products of Michigan?

Wisconsin (Wis.). 29. Which is the largest city in this state? For what important? 30. What other cities are mentioned in the text? What is done in each? 31. Compare Wisconsin with Michigan in relief; in mineral products; in crops; in the size of cities. 32. What effect must the lakes have upon the climate? Would this influence be greater or less than in Michigan? Why? 33. If there were coal beds in northern Wisconsin, what effect might the coal have upon Chicago, Cleveland, and the coal mining of Pennsylvania?

Minnesota (Minn.). 34. Where does the Mississippi River rise? 35. What oceans receive the water that falls upon Minnesota? Give proof. 36. What manufacturing industries are carried on in this state? 37. What crops are raised? 38. Name the three largest cities, and tell how each is important. 39. How does the largest compare in size with Boston? With Cincinnati?

Iowa (Ia.). 40. Examine the maps (Figs. 239–249) to see what crops are raised in this state. 41. What other important industries are carried on? 42. Name the largest cities. For what are they noted? 43. Much corn is raised here; what is done with it?

Missouri (Mo.). 44. Examine Figures 371–381 to see how the crops of Missouri differ from those of Minnesota. Why this difference? 45. Why are so few large towns found in the southwestern part? 46. Name and locate the two largest cities. For what is each important? 47. What other cities are mentioned? 48. Find the population of St. Louis; compare it with that of Philadelphia and Boston. 49. Give five reasons for its great size.

Kansas (Kan.). 50. Why are the cities in the eastern part? 51. What are the industries of the West? Why? 52. What are the leading crops in Kansas (Figs. 239–249)? What other industries are important? 53. Name the principal cities. For what is each noted?

Nebraska (Neb.). 54. How do the industries of Nebraska compare with those of Kansas? Why? 55. How are these states alike in regard to location of cities? 56. What cities in Nebraska are mentioned? 57. For what is Omaha noted?

North and *South Dakota* (N.D. and S.D.). 58. These two states once formed the territory of Dakota. Suggest reasons for making two states out of the one territory. 59. Compare the industries of the two states with those of

Nebraska and Kansas. 60. Look at the corn and wheat maps (Figs. 239 and 241) to see where most wheat and corn are produced. Is North Dakota more or less important than Kansas as a corn-producing state? Answer the same for wheat. Why is this so? 61. Of what advantage would it be to Fargo if a deep river extended from that city to Duluth? 62. How do the Black Hills increase the wealth of South Dakota?

General Review Questions

63. Which state is the largest in this group (see Appendix of Statistics)? Which smallest? Compare each of these two in area with Pennsylvania; with Texas. 64. Which of the Central States has most inhabitants (see Appendix)? Which fewest? Compare each of these two in population with New York; with Texas. 65. Find the ten largest cities (see Appendix).

Suggestions

1. Write a brief description of the Western prairies. 2. Find how much earlier in the autumn frosts come in Minneapolis than in Memphis. 3. How do farms that you have seen differ from the Ohio farm described in the text? 4. Find other uses of corn, besides those mentioned. 5. How does the wind often help ranch cattle to obtain food in winter? 6. What are some of the advantages that cowboys experience? 7. Why are coal and brick especially valuable in a prairie country? 8. Visit a brickyard, and write a description of brickmaking. 9. See how long a list you can make of articles manufactured partly or wholly out of copper. 10. Do the same with regard to lead. 11. Do the same with regard to iron. 12. From what animals do wool, beef, veal, pork, mutton, lard, tallow, and leather come? 13. Add some wheat, corn, and other grains to the school collection. 14. How are the advantages of the location of Chicago somewhat similar to those of Atlanta? 15. Make a drawing of the great water route from Duluth to New York City, and put in the leading cities located upon it. What states border on this route? 16. Make a drawing of the Mississippi, Missouri, and Ohio rivers, and include the leading cities. What states do these rivers border or cross? 17. Make a sketch map of the Central States, including the principal lakes, rivers, and cities. 18. Name and locate the capital of each of the Central States.

5. The Western States

Map study

1. Name the states in this group. Write the names. 2. In what direction do the mountain ranges cross them? 3. Name the principal ranges. 4. Name and trace the chief rivers. 5. In what section do you find very few rivers? What does that suggest about the rainfall? 6. Find some rivers emptying into lakes with no outlet. Are those salt or fresh water lakes? Why? 7. How far is it across these states, measuring from the northern to the southern boundary of the United States? 8. How far is it from New York City to San Francisco? 9. Measure the length of California. Compare its length with that of Pennsylvania. 10. Compare the area of California, also of Colorado, with that of Pennsylvania. (See Appendix.) 11. What one of our states is larger than California? How much larger? 12. What states border on the Pacific Ocean? 13. How does the Pacific coast compare in regularity with that of the Northeastern States (Fig. 12)? 14. On Figure 6 note whether San Francisco is farther north or south than New York City. 15. On the same map find out, as nearly as you can, the point that is midway between New York City and San Francisco. 16. Name those states whose waters drain mainly or entirely into the Pacific; into the Atlantic; into the Great Basin.

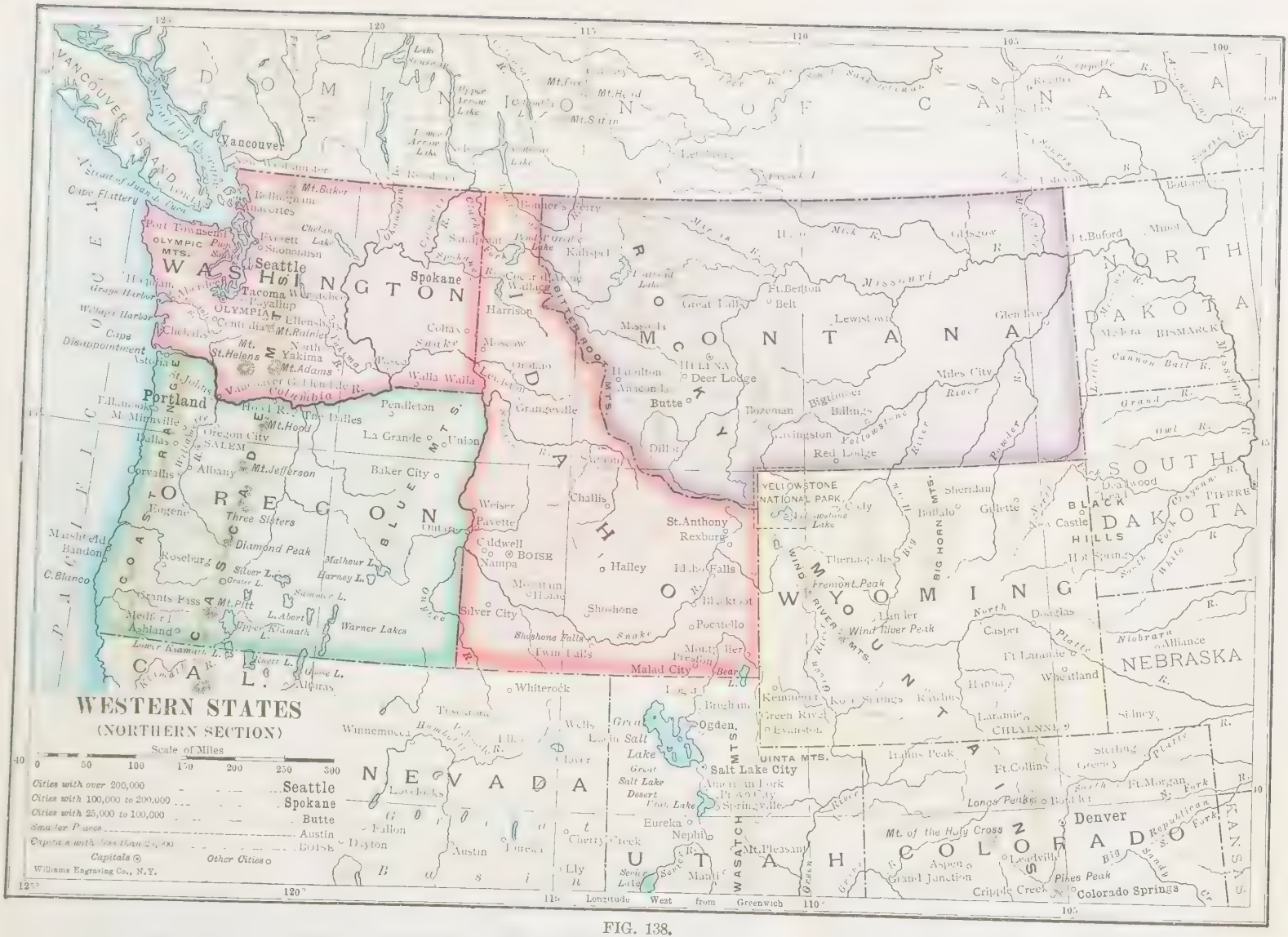
Area

These eleven states are larger than the Northeastern and Southern States combined. Indeed, they make up much more than one third of the entire area of the United States.

Population

1. Effect of discovery of gold

Little was known about them until 1848, when gold was discovered in the stream gravels of California. As the discovery became known, however, tens of thousands of persons in the East left farms, factories, and homes in a mad rush for the gold fields. Some sailed all the way around South America; others crossed the Isthmus of


WESTERN STATES
(NORTHERN SECTION)
Scale of Miles
0 50 100 150 200 250 300
Cities with over 200,000 ... Seattle
Cities with 100,000 to 200,000 ... Spokane
Cities with 25,000 to 100,000 ... Butte
Smaller Places ... Austin
Capitals with less than 25,000 ... Boise
Capitals ⊙ Other Cities ○
Williams Engraving Co., N.Y.
Longitude West from Greenwich
DOMINION OF CANADA
WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
Vancouver
Seattle
Tacoma
Spokane
Portland
Salem
Boise
Salt Lake City
Denver
Colorado Springs
Butte
Helena
Cheyenne
Pierre
Bismarck
Yellowstone National Park
Columbia
Snake
Missouri
Platte
Colorado
Pacific Ocean
Puget Sound
Great Salt Lake
Malad City
Pocatello
Idaho Falls
Rexburg
St. Anthony
Twin Falls
Shoshone
Silver City
Hailey
Challis
Weiser
Caldwell
Nampa
Baker City
La Grande
Pendleton
Walla Walla
Dillon
Bozeman
Billings
Livingston
Red Lodge
Miles City
Great Falls
Lewistown
Glendive
Deer Lodge
Anaconda
Missoula
Kalispell
Spokane
Cheyenne
Laramie
Casper
Douglas
Sheridan
Buffalo
Gillette
Rock Springs
Green River
Evanston
Ogden
Provo
Eureka
Nephi
Mt. Pleasant
Grand Junction
Aspen
Leadville
Cripple Creek
Pikes Peak
Longs Peak
Mt. of the Holy Cross
Fort Collins
Fort Morgan
Greeley
Sterling
Wheatland
Alliance
Black Hills
Deadwood
Rapid City
Winnemucca
Reno
Carson City
Austin
Fallon
Dayton
Lovelock
Elko
Ely
Tonopah
Goldfield
Bodie
Mono Lake
Owens Lake
Death Valley
Salt Lake
Great Salt Lake Desert
Utah Lake
Sevier Lake
Uinta Mts.
Wasatch Mts.
Wind River Mts.
Big Horn Mts.
Black Hills
Olympic Mts.
Cascade Range
Sierra Nevada
Rocky Mts.
Bitter Root Mts.
Mt. Baker
Mt. Rainier
Mt. Adams
Mt. St. Helens
Mt. Hood
Mt. Jefferson
Three Sisters
Diamond Peak
Mt. Pitt
Mt. Shasta
Mt. Lassen
Mt. Whitney
Mt. Ruinier
Mt. Fremont
Mt. Lanier
Wind River Peak
Longs Peak
Pikes Peak
Mt. of the Holy Cross
Vancouver Island
Cape Flattery
Cape Disappointment
C. Blanco
Puget Sound
Great Salt Lake
Malad City
Pocatello
Idaho Falls
Rexburg
St. Anthony
Twin Falls
Shoshone
Silver City
Hailey
Challis
Weiser
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Great Salt Lake Desert
Utah Lake
Sevier Lake
Uinta Mts.
Wasatch Mts.
Wind River Mts.
Big Horn Mts.
Black Hills
Olympic Mts.
Cascade Range
Sierra Nevada
Rocky Mts.
Bitter Root Mts.
Mt. Baker
Mt. Rainier
Mt. Adams
Mt. St. Helens
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Mt. Whitney
Mt. Ruinier
Mt. Fremont
Mt. Lanier
Wind River Peak
Longs Peak
Pikes Peak
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Mt. of the Holy Cross
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Goldfield
Bodie
Mono Lake
Owens Lake
Death Valley
Salt Lake
Great Salt Lake Desert
Utah Lake
Sevier Lake
Uinta Mts.
Wasatch Mts.
Wind River Mts.
Big Horn Mts.
Black Hills
Olympic Mts.
Cascade Range
Sierra Nevada
Rocky Mts.
Bitter Root Mts.
Mt. Baker
Mt. Rainier
Mt. Adams
Mt. St. Helens
Mt. Hood
Mt. Jefferson
Three Sisters
Diamond Peak
Mt. Pitt
Mt. Shasta
Mt. Lassen
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Mt. Ruinier
Mt. Fremont
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Wheatland
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Rapid City
Winnemucca
Reno
Carson City
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Tonopah
Goldfield
Bodie
Mono Lake
Owens Lake
Death Valley
Salt Lake
Great Salt Lake Desert
Utah Lake
Sevier Lake
Uinta Mts.
Wasatch Mts.
Wind River Mts.
Big Horn Mts.
Black Hills
Olympic Mts.
Cascade Range
Sierra Nevada
Rocky Mts.
Bitter Root Mts.
Mt. Baker
Mt. Rainier
Mt. Adams
Mt. St. Helens
Mt. Hood
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Mt. Shasta
Mt. Lassen
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Mt. Ruinier
Mt. Fremont
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Winnemucca
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Great Salt Lake Desert
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Sevier Lake
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Wasatch Mts.
Wind River Mts.
Big Horn Mts.
Black Hills
Olympic Mts.
Cascade Range
Sierra Nevada
Rocky Mts.
Bitter Root Mts.
Mt. Baker
Mt. Rainier
Mt. Adams
Mt. St. Helens
Mt. Hood
Mt. Jefferson
Three Sisters
Diamond Peak
Mt. Pitt
Mt. Shasta
Mt. Lassen
Mt. Whitney
Mt. Ruinier
Mt. Fremont
Mt. Lanier
Wind River Peak
Longs Peak
Pikes Peak
Mt. of the Holy Cross

FIG. 138.

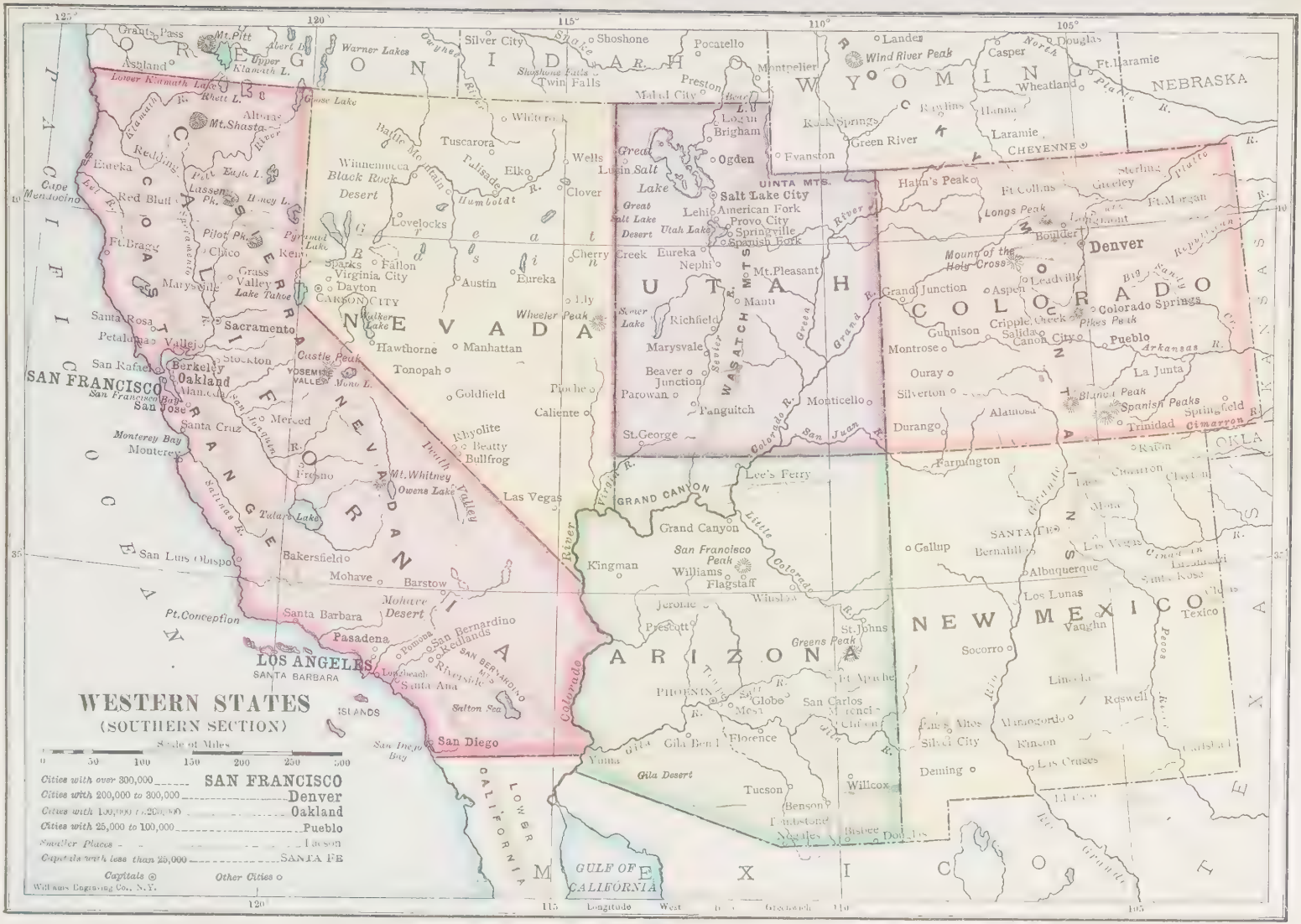

WESTERN STATES
(SOUTHERN SECTION)
Scale of Miles
0 50 100 150 200 250 300
Cities with over 300,000 SAN FRANCISCO
Cities with 200,000 to 300,000 Denver
Cities with 100,000 to 200,000 Oakland
Cities with 25,000 to 100,000 Pueblo
Smaller Places Tucson
Capitals with less than 25,000 SANTA FE
Capitals ⊙ Other Cities ○
Williams Engraving Co., N.Y.
PACIFIC OCEAN
OREGON
IDAHO
WYOMING
NEBRASKA
CALIFORNIA
NEVADA
UTAH
COLORADO
KANSAS
OKLA
ARIZONA
NEW MEXICO
TEXAS
MEXICO
LOWER CALIFORNIA
GULF OF CALIFORNIA
SAN FRANCISCO
LOS ANGELES
SANTA BARBARA
ISLANDS
Denver
Salt Lake City
Pueblo
Santa Fe
Sacramento
Oakland
Berkeley
San Jose
Monterey
Fresno
Bakersfield
Pasadena
San Diego
Reno
Carson City
Virginia City
Las Vegas
Phoenix
Tucson
Yuma
Flagstaff
Albuquerque
Denver
Cheyenne
Laramie
Casper
Cape Mendocino
Pt. Conception
Mt. Shasta
Mt. Whitney
Mt. Pitt
Wind River Peak
Longs Peak
Pikes Peak
Spanish Peaks
Mount of the Holy Cross
Wheeler Peak
Castle Peak
San Francisco Peak
Greens Peak
Gila Bend
Gila Desert
Death Valley
Salton Sea
Owens Lake
Tulare Lake
Mono L.
Lake Tahoe
Great Salt Lake
Utah Lake
Lower Klamath Lake
Goose Lake
Warner Lakes
Black Rock Desert
Humboldt R.
Colorado R.
Columbia R.
Snake R.
Green River
Grand R.
San Juan R.
Rio Grande
Arkansas R.
Platte R.
Cimarron R.
Pecos R.
Gila R.
Salinas R.
Sacramento R.
Klamath R.
Pit R.
Eel R.
Rio Grande
Longitude West Greenwich
125° 120° 115° 110° 105°
35°

FIG. 138.

PHYSICAL MAP OF THE
WESTERN STATES
Scale of Miles
0 50 100 150 200 250 300
KEY
Over 8,000 ft.
From 2,000 to 8,000 ft.
From 500 to 2,000 ft.
From 100 to 500 ft.
From 0 to 100 ft.
From 0 to 650 ft.
From 650 to 6,500 ft.
Below 6,500 ft.
Sea Level
DOMINION OF CANADA
Lake Winnipegosis
GREAT CENTRAL PLAIN
ROCKY MOUNTAINS
CORDILLERAN HIGHLAND
COLUMBIA PLATEAU
BITTERROOT MTS.
BLUE MTS.
BIG HORN MTS.
BLACK HILLS
YELLOWSTONE NATIONAL PARK
Yellowstone Lake
Fremont Peak
Wind River Peak
Mt. Baker
OLYMPIC MTS.
Puget Sound
Mt. Rainier
Mt. St. Helens
Mt. Adams
Cape Flattery
Cape Disappointment
Cape Blanco
Cape Mendocino
Mt. Hood
Mt. Jefferson
Three Sisters
Diamond Peak
Mt. Pitt
Walker Lakes
Mt. Shasta
Lassen Peak
Walker Lake
Mono Lake
YOSEMITE VALLEY
Mt. Whitney
Mohave Desert
SAN BERNARDINO MTS.
Salton Sea
Point Conception
SANTA BARBARA ISLANDS
San Diego Bay
Monterey Bay
San Francisco Bay
Great Salt Lake
Great Salt Lake Desert
Utah Lake
UINTA MTS.
WASATCH MTS.
Wheeler Peak
Sevier Lake
Longs Peak
Mt. of the Holy Cross
Pikes Peak
Blanca Peak
Spanish Peaks
COLORADO PLATEAU
GRAND CANYON
San Francisco Peak
GILA RANGE
Greens Peak
Gila Desert
LOWER CALIFORNIA
GULF OF CALIFORNIA
MEXICO
Rio Grande
Missouri
Yellowstone
Snake
Columbia
Colorado
Arkansas
Rio Pecos
Williams Engraving Co., N. Y.
Longitude West from Greenwich

FIG. 139.

WESTERN STATES
Modeled by Edwin E. Howell.
SCALE
0 50 100 200 300 400
Macmillan Co.

FIG. 140.

Panama; but many traveled overland, running the risk of attack from Indians and of death from hunger and thirst. There were then no railways west of the Mississippi, and the journey was long and dangerous.

The discovery of gold quickly drew many settlers to California; and, as the search for the precious metal was carried farther and farther, the entire West soon became explored and settled. Railways were built across the mountains (Fig. 271), and many industries, such as farming, lumbering, and manufacturing, followed mining.

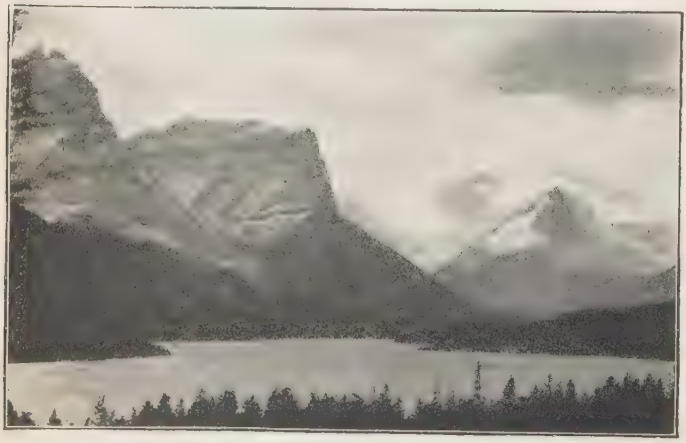


Fig. 141. — A lake in the picturesque Rocky Mountains of Montana.

Yet the population of these states is now only seven million, while that of the Northeastern and Southern States together is over fifty-five million. This means that the Western States are very thinly settled; in fact, this is the most thinly settled part of our country.

2. Present population

Let us find some of the reasons for this condition. One reason is the far western position of these states. Most of the early settlers in this country came from Europe, and settlements were made first along the eastern coast. It was a long distance from there to the Mississippi River, and it was only after the Eastern States were fairly well occupied that many people crossed the Mississippi to go farther west. Now that the East is so fully settled, more and more people go to live in the Far West.

Reasons for small population

1. Their position so far west

Another reason why there are so few people is the mountainous condition of the country. The Appalachian Mountains greatly hindered early settlers from reaching the fertile valley of the Mississippi. The mountains of the West are far more extensive, and more difficult to cross, than the Appalachians. Instead of one mountain chain, there are four great mountain systems extending north and south, and between them are broad plateaus, some of which are more than a mile above the level of the sea. A large portion of the Western States is plateau country.

2. Their many mountains and plateaus

In traveling westward from the Mississippi, one passes first over the Great Plains, whose height above the level of the sea gradually increases to about a mile. Then come the *Rocky Mountains*, which rise from five to ten thousand feet higher. Note the states that they cross. The name *Rocky* suggests how difficult it is to travel over them, for they are high and very rough.

Extending from these mountains for nearly a thousand miles to the west is a plateau, with one part, called the *Great*

Basin, lower than the rest. On the western side of the Great Basin, in California, are the *Sierra Nevada* ranges; and farther north, in Oregon and Washington, are the *Cascade Ranges*. Before the Pacific is reached, still a third system of mountains, called the *Coast Ranges*, must be crossed. They are separated from the Sierra Nevada by a broad valley. All these Western mountains together are known as the *Western Cordillera*. Their highest peak is Mount Whitney, in California, the loftiest mountain in the United States outside of Alaska.

Copyright, 1906, by A. H. Barnes.

FIG. 142. — Mount Rainier, in Washington, one of the most beautiful volcanic cones of the West. It is plainly visible from Tacoma.

A third reason for the sparse population is the lack of rain. We have already learned that the western parts of Texas (p. 57) and the states farther north (p. 76) receive too little rain for agriculture.

3. Their lack of rain

There are two reasons for this dryness. In the first place, in the southern portion of these states the winds blow from the land *toward* the Pacific Ocean, not *from* it. They cannot, therefore, carry much vapor, and part of the country is a true desert (Fig. 143).

In the second place, although the winds farther north blow from the Pacific, they soon lose their moisture as they move eastward. They have plenty of vapor when they reach the coast, but as they rise over the mountains, much of this falls as rain or snow. The rainfall is therefore very heavy on and near the Coast Ranges. Continuing eastward, the winds blow over the Sierra Nevada and Cascade ranges, and are there robbed of more moisture. The air then becomes so dry that a large part of the country farther east, as far as the Rocky Mountains, receives very little rain.

FIG. 143. — Desert landscape in southwestern United States. Only scattered plants grow in this sandy waste.

Again, on crossing the lofty Rocky Mountains, these west winds lose still more of their

moisture. This is suggested on the map by the number of large rivers that find their sources in these mountains. Name and trace some of them. As a result, if winds from the Gulf of Mexico and from the Atlantic Ocean did not bring some vapor for rain, the country east of the Rockies might be as dry as the Sahara Desert. As it is, some rain falls even close to the eastern base of the Rocky Mountains, so that this region, though arid, is not a true desert.

Fig. 144. — The desert near Great Salt Lake in Utah.

In the plateau and Great Basin region, which lies between the Sierra Nevada-Cascade System and the Rocky Mountains, the climate, for the most part, is dry or arid. Note the states that are included. In places the climate is so dry that the country is a real desert (Fig. 144).

On these deserts one may travel for scores of miles without seeing vegetation of any kind excepting cactus, scattered blades of grass, and such other plants as grow in dry soil. There are no trees, because of lack of water; and there is little to be seen except sand and rock. It was very difficult for early settlers to cross these arid and desert regions, for there was often no water to drink, and there was little game for food. Almost one fifth of the United States is unfit for agriculture without irrigation, and most of this arid land is in these Western States.

Some parts of this section, however, are well watered. Along the Pacific coast, in particular, from central California to Canada, there is abundance of rain (Fig. 275). Measure this distance. In western Washington, where the west winds rise to pass over the mountains, the heaviest rainfall in the United States occurs.

Agriculture

1. In the region of sufficient rain

This rainy region has also a mild climate and a fertile soil, and is, therefore, a very rich farming country. Fruits of many kinds are raised, mainly peaches, plums, apricots, pears, apples, grapes, and berries; and farther south, in California, oranges, lemons, grapefruit, and figs thrive. In Washington (Fig. 146) and Oregon, east of the mountains, and in the Great Valley district of California, wheat growing is an important industry. The farmers here enjoy one peculiar advantage. Very little rain falls during the harvest season, so that grain may be left out of doors for weeks with little danger of being spoiled. Walla Walla, Wash., Lewiston, Ida., and Pendleton, Ore., are situated in this great wheat region. Large quantities of hay, barley, corn, oats, and vegetables, and many farm animals also, are raised in this well-watered section.

There are other smaller sections where the rainfall is sufficient for agriculture; but the only way in which farming is possible in most other parts of the West is by means of irrigation.

Fig. 145. — Some of the wild animals of the Far West.

FIG. 146. — Cutting wheat in the fertile wheat region of eastern Washington. By this large machine, drawn by thirty-two mules and horses, the wheat is cut, threshed, and put into sacks ready for shipment.

2. In Southern California

(1) *The plan for obtaining water*

The southern half of California, being near the ocean, might be expected to receive abundant rainfall. Indeed, during the winter season the rain often pours down until rushing torrents are formed among the hills and mountains. In the summer season, however, when plants most need moisture, the winds no longer blow from the ocean. On that account, no rain falls in summer, and the southern part of California is then a true desert. This is the case even within sight of the ocean, and where the soil is very fertile.

Why can not some of the rain that falls in winter be stored up then for use in summer, when it is needed? That was the question that men asked, and they set to work to store up the water.

Dams were built among the hills and mountains, collecting the winter's floods into ponds and lakes, and holding the water there till summer came. Then ditches many miles long were dug (Fig. 150), or pipes were laid, leading the water down from these reservoirs to the fertile plains. Smaller ditches were dug from the main ones, leading to the farms in various directions. From these each farmer could turn the water into still smaller ditches on his own land, and, when he wished to do so, could flood his fields (Fig. 151).

Thus, as often as was necessary during the long, dry summer, the crops could be given the water that they needed.

This is what is meant by *irrigation*. It is expensive, but it is even better than rain, because it supplies the exact quantity of water that is needed, and at the time when it is wanted.

(2) *The products*

Irrigation has changed much of southern California from a barren desert into a paradise of flowers, fruit trees, and beautiful homes (Figs. 148 and 149). This is the land from which we get many of our oranges (Fig. 147) and lemons, the other important source being Florida. Seedless or navel oranges come mainly from Califor-

nia. Nearly every home has its orange trees, and in many cases the house is entirely surrounded by them (Fig. 148). Also, quantities of peaches, plums, apricots, pears, apples, grapes, figs, olives, and nuts are raised here, as well as grain, vegetables, and other crops.

the trees, sorted according to size, then packed in boxes and shipped away.

Immense quantities of peaches, prunes, apricots, grapes, figs, and other fruits are dried. In the Eastern States fruit would soon decay if left out of doors, but in the sunny climate of the arid

FIG. 147. — Picking oranges in the irrigated country of southern California, near Pasadena.

The groves of all kinds are planted in straight rows, and the ground is kept so clean by frequent plowing that scarcely a weed is to be seen. In this respect the groves present a very different appearance from the orchards, overgrown with grass and weeds, that are often seen upon farms of the East.

(3) Care of the fruit, and what is done with it

The winter season is the harvest time for oranges, which are picked from about the middle of November until February, or later (Fig. 147). They are cut from

lands it dries quickly. Much fruit is also canned, and many grapes are made into wine. California wine is of such high quality that it is sent not only to the East, but even to Europe.

The value of irrigation is well shown here. Before irrigation was introduced into southern California, this region could support very few people. Now, in LOS ANGELES and vicinity, there is a population of several hundred thousand.

One of the chief agricultural regions of the West is the *Great Valley of Cali-*

FIG. 148. — An orange grove in southern California on land which not many years ago supported only the sparse vegetation of an arid climate.

FIG. 149. — This view, near Pasadena, California, shows the barren arid lands, in the midst of which are extensive orange groves, irrigated by water from the mountains.

fornia which lies between the Sierra Nevada and the Coast Ranges. In the north there is rainfall enough for agriculture, but irrigation is necessary in the south. In the central and southern parts of this valley there are groves of oranges, lemons, olives, and figs, as well as other trees that thrive only in warm climates. SACRAMENTO, STOCKTON, and FRESNO are the leading cities of the Great Valley, which, throughout its whole length, is occupied by a succession of wheat fields, vineyards, orchards, and nut and fruit groves. California fresh fruit is shipped in enormous quantities to Eastern cities, while dried and canned California fruits are to be found in most of our groceries.

3. In the Great Valley of California

The influence of irrigation is well illustrated also in the region near DENVER, which lies in the midst of an arid plain. This plain is crossed, however, by the South Fork of the Platte River, from which a ditch, as large as a canal, is led out upon the plain (Fig. 150). The river itself has a rapid fall, but just enough slope has been given the ditch to allow the water to flow. Thus the ditch runs on a higher level than the river, and the land between the ditch and the river is lower than the ditch.

4. In Colorado and Wyoming, by irrigation

(1) *How irrigation is planned near Denver*

Water from the ditch may therefore be led out over these fields to irrigate them. For this purpose ditches branch off from the main canal, and each of these is divided and subdivided to supply farms along its course. When a field needs water, one of the smaller ditches is tapped and the field is flooded; or else the water is led into little furrows a few feet apart (Fig. 151). The method followed depends upon the kind of crop that is under cultivation.

FIG. 150. — An irrigating ditch near Denver. The water is led from a river, and by it the land, otherwise useless for agriculture, is made to yield rich harvests.

Each farmer must pay for his water at a certain rate, as each tenant of a house in the city pays for his water or gas.

(2) *Expense of such irrigation, and its advantages*

That a farmer can afford to pay for water, however, is well shown in this case; for on the upper side of the ditch, which cannot be reached by the water, the land is fit only for grazing, while on the lower side there are rich fields of grain, vegetables, and alfalfa. The latter, like clover and grasses, is fed to stock. It is one of the most important crops of the arid regions, where there is much demand for fodder for cattle, hogs, sheep, and horses.

FIG. 151. — A farmer irrigating his field. The water from the irrigating ditch is allowed to run along the furrows and thus wet the seeds that have just been planted.

Without irrigation, crops could not be grown in this vicinity. It would then be necessary to bring farm products from Kansas, Nebraska, and other states, a distance of several hundred miles. It is evident, therefore, that irrigation must have had a great influence on the settlement of the West. Without it DENVER and PUEBLO would not be so important as they are; and, because of the expense of carrying food so far, scores of mining towns would not exist. Wherever the waters of the rivers are led out over the fields, people form settlements, and even towns and small cities. That is the case at GREELEY, in Colorado; CHEYENNE and LARAMIE, the principal cities in Wyoming; and scores of other places.

5. In Utah, by irrigation

The region around SALT LAKE CITY, in Utah, is another irrigated section similar to that just described. A large part of that state was once a desert. But extensive areas have been entirely changed by the Mormons, a religious sect founded in New York, in 1830, by Joseph Smith.

Under the leadership of Brigham Young these people migrated into the then unknown West and settled a few miles from Great Salt Lake. Here they built SALT LAKE CITY, which is now the capital of Utah, and is one of the beautiful cities of the country.

The mountains, not far away, supply water for irrigation; and fruits, alfalfa, and many other farm products are produced in abundance. Besides Salt Lake City there are many smaller places near by and also the city of OGDEN, the second city in size in Utah.

Great Salt Lake is the largest lake in the Great Basin. Although many streams flow into it from the neighboring mountains, so much water evaporates in this arid region that the lake does not rise high enough to overflow. It has therefore grown more and more salt, until now its water is much salter than the ocean itself. It is so salt, and on that account so dense, that a person cannot sink in it.

The description of these few places serves to show the importance of irrigation in the

West. It is not to be understood, however, that these are the only noted irrigated sections, for there are many others. Most of the larger and better known are along the principal rivers. For example, irrigation is extensively employed along the Yellowstone and Missouri rivers and their tributaries in Montana; along the Snake River and its tributaries in Idaho; along the Yakima River (Figs. 152 and 153), and other streams tributary to the Columbia River in Washington, Oregon, and Idaho; along the Gila and Salt rivers in Arizona; along the Ric Grande and Pecos rivers in New Mexico; and along the Sacramento, San Joaquin and other rivers in California. The map (Fig. 248) shows that there are many irrigated sections.

6. In other irrigated sections

FIG. 152. — Desert land in the Yakima Valley, covered with the worthless sagebrush. Such land is of almost no value; but compare this picture with Figure 285.

In spite of all these facts, the amount of irrigated land in the West is small compared with the amount that is still either desert or dry enough to be called *arid*. Much of this land will probably always remain arid, because no water can be obtained for it.

7. Work of the United States government in irrigation

There is, however, much land, now almost useless, that might be irrigated if the expense could be met. Most of this land still belongs to the United States government, and it is very important that water be brought to it, so that settlers may occupy it and make it produce valuable crops. For these reasons the United States government is now spending millions of dollars in building extensive irrigation works in the West. Some of the largest are in Idaho and Arizona.

One of the completed works is the Roosevelt dam in the Salt River in Arizona, which will supply water for a large area near PHŒNIX.

Enormous dams are being built elsewhere (Fig. 154). forming large lakes in the mountain valleys, from which water may be led in summer, when needed by the crop. This is one of the most important works in which our government is engaged.

FIG. 153. — Land in the Yakima Valley which only a few years ago was covered with sagebrush like that in Figure 284. Now, being reached by an irrigation ditch, it supports a flourishing young peach and apple orchard and is worth $1000 an acre.

While the greater part of the arid lands is without irrigation, and for that reason is not cultivated, it is by no means entirely useless. Most of it receives rainfall enough for a crop of nourishing grass. This vast arid section, therefore, is valuable for grazing. It is the land of the cattle ranch (Fig. 113) and of the cowboy, who spends most of his time in the saddle looking after his herds. Besides cattle, many sheep and horses are raised, and also goats in regions where there is least grass.

8. Ranching
(1) *Kinds of animals raised*

The manner in which cattle ranching is carried on in Dakota was described on pages 82–84, and much the same plan is followed for cattle and horses in all the Western States. Sheep ranching is somewhat different, as may be seen from the ranches about BILLINGS, Montana.

(2) *How sheep ranching is carried on*

FIG. 154. — A masonry dam built by the United States government, forming a large lake in which water is stored for use in irrigation during the summer.

A good-sized sheep ranch has from twenty-five thousand to forty thousand head of sheep. These, like cattle, may feed partly upon government land, or the "range," and partly on land fenced in and owned by the ranchman. During the coldest winter weather, when the snow may be so deep that the sheep cannot obtain food, they are often driven into protected *corrals* and fed on alfalfa. The fierce winds of the open plains help them, however, by drifting the snow, thus leaving open patches where they can find grass.

When the sheep are feeding on the range, one man, with a dog (Fig. 155), can herd twenty-five hundred; and if he has a horse to ride, he sometimes takes care of five thousand. Selecting a spot near water for a camp, the herder drives his sheep out each morning, and back at night, going each day a distance of two or three miles from camp. When the grass in one place has been eaten the camp is moved; then, from the new point as a center, the sheep wander out as before.

The life of the herder is very lonely, both day and night being spent with the sheep. Once a week a man brings him food; but for weeks, and even months at a time, the only company he has, aside from his sheep, is his dog, and possibly his horse.

After the winter is over, the first income to the ranchman comes from the sale of the skins, or pelts, of sheep which have died during the cold weather. Each year he expects to lose from this cause about one sheep in twenty.

(3) *Sources of profit*

Next comes the harvest of wool (Fig. 156). Men who make it their business to shear sheep travel in squads of about twenty-five. They erect sheds and pens near some sheep center, such as BILLINGS, and shear all the sheep that

FIG. 155. — A Montana sheep herder with his dogs and his flock.

are brought to them. Sometimes sheep are sheared at the ranch, but many ranchmen prefer to drive them near to a market before they are sheared. This saves the expense of hauling the wool to the railway station; and besides, the sheep graze on the way to and from the market.

In the Southwestern States sheep are often sheared twice a year; but farther north only once, and then as near the month of June as possible. Can you suggest a reason for choosing that time? After the wool is cut, it is pressed into bales and shipped to various markets in the East. Where should you think it might be sent, and for what purposes used?

From July on, many sheep are sold for mutton. Those that are from three to five years old, and that have already produced a quantity of wool, are usually selected for this purpose. The hides are used for leather and the bones for fertilizing the soil.

Mining

1. Kinds of minerals

Although agriculture is the most important industry in the Western States, it is for mining that they are most noted.

Every one of them contains mineral

FIG. 156. — Shearing sheep in Montana. The men hold the sheep and the wool is clipped off by machinery. There is a great pile of this wool along the middle of the shed.

deposits of some kind, such as gold, silver, copper, lead, mercury, petroleum, and coal; and together they form one of the most important mining districts in the world.

Much gold has been discovered in the river gravels. In many regions it is easy to get the gold out of these gravels, but in some places the stream beds have been covered with a thick blanket of hard rock. Then it is necessary for the miners to tunnel under the rock in order to obtain the gold.

2. Methods of mining gold

FIG. 157. — These powerful streams of water wash the gravel away, and the gold collects in the bottom of troughs, or sluices. This is called hydraulic mining.

The first miners obtained the gold in a very simple manner. Placing some of the stream gravel in a pan of water, they rocked it back and forth in such a way as to cause the heavier particles of gold to sink to the bottom of the pan, while the lighter minerals on top were washed out and thrown away. Most of the gold was in very small flakes, but sometimes the miners found large lumps of gold, called *nuggets*, worth hundreds of dollars. This method of washing away the gravel in pans was called "panning" the gold.

(1) "Panning" the gold

Very soon the miners tired of such a slow process. They then invented the far more speedy plan of *hydraulic mining*. By this method a powerful stream of water from the nozzle of a pipe is turned against a gravel bank, washing the gravel rapidly away (Fig. 157). The water, with the gravel and gold, runs into steeply sloping troughs or *sluices*, to the bottoms of which many cleats are fastened. The rushing water carries the gravel over these cleats to the end of the sluice, where it is dropped; but the gold, being so heavy, settles to the bottom of the sluice and is caught behind the cleats. Later it is removed.

(2) Hydraulic mining

In this way much gold has been obtained from the gravels of California and other Western States. For example, even the gravel out of which some of the streets of HELENA, Mont., are built has been washed for gold in this way.

The method by which most gold is now obtained is to dig into the solid rock, as in the mining of other metals. The shafts and tunnels follow the veins in which the gold is found mixed with other minerals which are of little or no value. This mixture is gold ore, and there is so little gold in such ore, and it is in such small grains, that one may spend days in a mine looking for it without *seeing* any. The gold ore, like other ores already studied, must be crushed and melted before the gold itself can be obtained.

(3) The common method now

One of the most remarkable gold-mining districts in the world is that of the Comstock Lode at VIRGINIA CITY, Nev. The vein is irregular in richness, some parts, called "bonanzas," containing much gold and silver, while others are quite barren. So much metal has been obtained from this single vein that Nevada at one time produced more silver than all the other states put together, and more gold than any other state in the

3. Noted mining districts

(1) In Nevada

Union. So many people moved there that Nevada territory became a state in 1864; and Virginia City, though in the midst of a desert, grew to be a thriving city.

As the mines went deeper, hot water, with a temperature of 170°, poured in causing unbearable heat. Ice-cold air was forced in, and machinery and mules were made to do most of the work; but even then men fainted at their posts. Partly because of the difficulty of mining, and partly because of the failure to discover new bonanzas, some of the mines were abandoned and people drifted away, so that for a while the population of Nevada decreased.

With the discovery of remarkable new mining fields, and the reopening of old mines, new towns have sprung up, and Nevada is again the center of great mining activity. It is now one of the leading states in the production of gold and silver. TONOPAH, GOLDFIELD, and BULLFROG are important and rapidly growing mining towns.

years ago there was no town here, and the gold ore, which later proved so valuable, was not recognized as ore. Finally, when some one discovered the gold, thousands of people rushed in from all directions, and a city sprang up almost in a day. This has occurred in many other places. Sometimes the cities have continued to grow, but in many places the mines have given out, and the towns have been abandoned almost as rapidly as they grew.

FIG. 158. — A view in the mining district of Victor, Colorado. There are mines beneath these buildings, and the waste rock removed from the tunnels forms huge banks near them.

(2) *In Colorado*

At present Colorado produces more gold than any other state (Fig. 263), and more silver than any other except Montana. In addition to these metals, Colorado produces much copper, lead, and iron. In the mountains one sees many mines (Fig. 158); but one of the most noted mining districts is near LEADVILLE, a city at an elevation of over ten thousand feet above the sea. Gold, silver, and lead are mined in this locality.

Another well-known mining camp in Colorado is CRIPPLE CREEK. A few

(3) *In Montana*

The western half of Montana is another noted mining section, and this state now leads in the production of silver, is second in copper, and produces also large amounts of lead, gold, coal, and other minerals. HELENA has already been mentioned (p. 116); but no portion of the state is now so important for mining as the region in and near BUTTE (Fig. 159). There the principal metal is copper, although some gold and silver are mixed with the ore. More copper has been produced at the Butte mines than in

FIG. 159. — Smelters in Butte, Montana, where copper is obtained from the ore.

copper mining region that rivals Butte, Montana. There is much smelting at DOUGLAS, and all these cities, as well as PHŒNIX, are trade centers for neighboring mines and irrigated farms.

There is much mining, especially of gold, silver, copper, and lead, in each of the other Western States. California ranks second among our states in the production of gold, and both Utah and Idaho rank high in the production of silver and lead. The Cœur d'Alene mining district of northern Idaho is the most important silver-lead district in the country (Fig. 161). SPOKANE, in Washington, is the trade center for this noted mining region, and this has had much to do with the remarkable recent growth of this city. In addition to the metals mentioned, these states, as well as Wyoming and New Mexico, produce large quantities of other valuable minerals. There are many important mining towns and mining camps in each of these states.

any other mining district in the world. The mines are very extensive, reaching several thousand feet into the earth, and having tunnels through which one might wander for days without finding his way out.

(4) In other Western States

The mining industry of Arizona is also very important, much copper, silver, lead, and gold being produced. Arizona now leads in the production of copper, Montana and Michigan being next in rank. One of the largest cities in the territory is TUCSON (Fig. 160). Another large city is BISBEE, the center of a noted

FIG. 160. — Tucson, Arizona, which owes much of its prosperity to the rich mines in the neighboring mountains

FIG. 161. — Miners at work underground in one of the silver-lead mines of the famous Cœur d'Alene district of Idaho.

4. Coal, petroleum, and other minerals

Coal, some of it of excellent quality, occurs in many places, and is mined in most of the Western States. The greatest amount comes from Colorado, which ranks eighth in coal production among the states of the country. Among Western States, Wyoming and Washington are next in importance in coal production.

Petroleum is another valuable product in the West. Enormous quantities have been found in California, and that state and Oklahoma now produce more than any others in the Union. It is extensively used on railway locomotives, in place of coal.

There are many other mineral products in the Western States, including building stones and semi-precious stones. Iron is found in several of these states, but as yet it is not mined to a great extent. With increase in manufacturing these stores of iron will doubtless be valuable.

5. The prospector

Much of the mining land in the West belongs to the government, and when a person finds a valuable deposit of metal, he can obtain a title to the land from the government. This has led many men, called *prospectors* (Fig. 162), to spend their lives roaming about over the Western plateaus and mountains seeking, or *prospecting for*, deposits of metal.

In some parts of the West travelers can see, even from the car windows, scores of little tunnels dug into the sides of the mountains by prospectors who have been hunting for ore. It is a hard, lonely life that such men lead, and it is full of danger. Most prospectors fail to find valuable deposits; but once in a while one discovers a rich vein, and suddenly finds himself a wealthy man.

FIG. 162. — A prospector with his burros, loaded with tools and supplies. In the mountains of Arizona.

Lumbering

1. The special demand for lumber

Mining gives rise to much lumbering in many parts of the West. Millions of feet of lumber are used each year in the Butte mines alone. In the mines heavy, upright timbers are placed close

together, on each side of a tunnel, to prevent the rock from caving in. Because of the great pressure upon them, timbers more than a foot through are often broken.

2. Location of the forests

While a great portion of the Western country is arid, and can support no trees, the mountains and some of the higher plateaus bear extensive forests. Hence the logs are easily brought down to the mines, which are usually among high mountains.

3. Kinds of trees, and their size

The most noted lumber region, however, is on and near the western coast, from central California northward.

Here, in the mild, damp climate, the largest trees in the world are found, and some of them have been growing for a thousand years or more. Among these are the giant redwood, the fir, cedar, and spruce. The redwood is found only in California, where there are extensive forests of these *big trees* (Fig. 163).

Fig. 163. — One of the "Big Trees" of California — so large that a wagon road passes through a tunnel cut in its trunk.

There are immense forests of giant trees all the way from central California to Canada. While the logs in Maine and Michigan are rarely more than two or three feet through, many in Washington and Oregon are from six to fifteen feet in diameter, and some in California are very much larger. Some of these are as large around as an ordinary "living room," and several have been found that are more than ninety feet in circumference, which is as great a distance as that around many a schoolroom. The main limb on one of these trees, called the Grizzly Giant, starts from the trunk two hundred feet above ground, and measures six and one half feet in diameter, or more than most large trees in the East.

4. Method of lumbering

A visit to a lumbering camp in western Washington will show that, owing to the size of the trees, and to the climate, the work is carried on very differently from lumbering in Maine (p. 18). The men are able to work both winter and summer. Selecting a tree, which perhaps towers upward for two hundred feet, — that is, higher than most church steeples, — two men saw and chop it until the giant begins to quiver; and when finally it falls, a wonderful sight may be seen. The tree bends slowly over, quickens its movement, then crashes to the ground, breaking good-sized trees in its way as if they were twigs.

After the branches are cut off, the tree is sawed into sections of different lengths, and these are dragged to a railway which leads up into the forest There the logs are piled upon flat cars and taken to the mills, a single section of a log sometimes occupying an entire car (Fig. 165). From five to fifteen thousand feet of lumber, or enough to build a small house, may be obtained from a single large tree. From Figure 166 you can see how thick some of these trees are.

FIG. 164. — Lumbermen at work in the forest of western Washington. Note in the foreground the donkey engine used for drawing logs.

Many of the logs go to TACOMA and SEATTLE, where there are enormous sawmills. There is such an abundance of wood in this region that in some places thick planks are used for paving the streets; and wood is burned as a

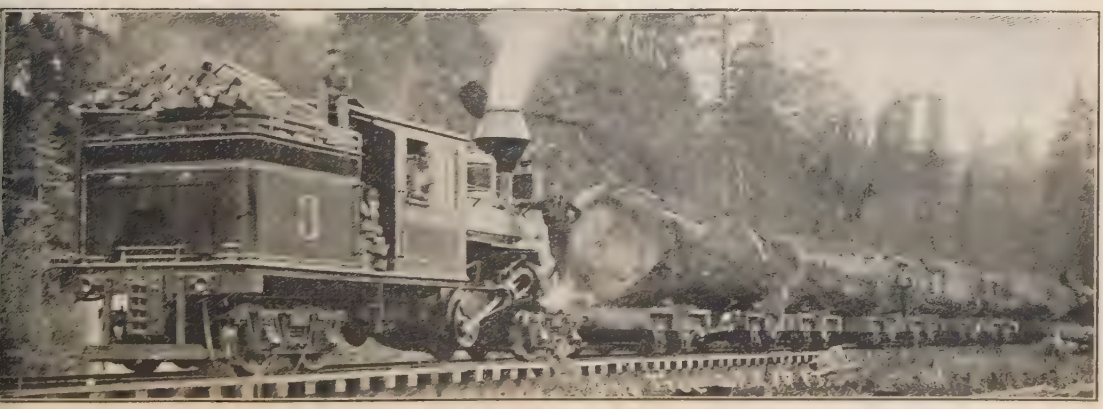


FIG. 165. — A train drawing lumber out of the forest of western Washington. Each section of a log occupies an entire car, and all the logs in the picture are parts of a single tree.

fuel in locomotives, and in the lumber mills. Such enormous quantities of lumber are obtained from these forests, and so cheaply, that it is sent even as far east as to the Atlantic coast. The Northwest is now the leading lumbering region in the country, and all the cities there have some share in the industry.

5. What is done with the logs and lumber

Much lumber is sent away by boat from PORTLAND and ASTORIA, but even more goes from the cities of Puget Sound. Besides SEATTLE and TACOMA, the cities of EVERETT and BELLINGHAM also are noted for their lumber industry.

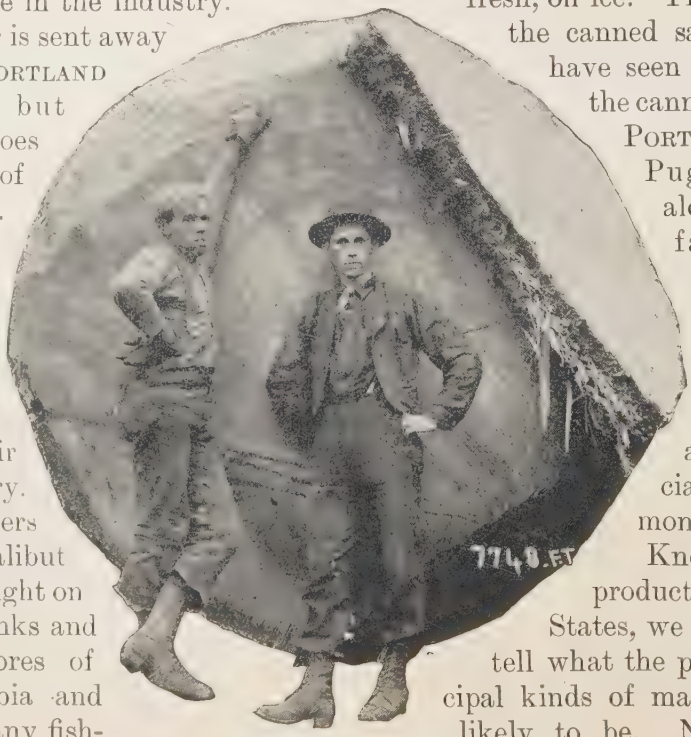


FIG. 166. — The end of a log cut from the forest of western Washington. You can see how large it is by the men standing in front of it.

Fishing

Large numbers of cod and halibut are caught on the banks and along the shores of British Columbia and Alaska, and many fishing vessels go there, especially from Seattle. Not all the fish that are thus caught are eaten by the Western people. For instance, fresh halibut, kept on ice in refrigerator cars, are sent from Seattle to many places in the East.

The most important fishing industry, however, is that of salmon catching. This fish, like the shad of the Eastern States, spends most of its life in the ocean, but passes up the rivers to spawn, or lay its eggs, in fresh water. As they are going toward and up the rivers, the salmon are caught in great numbers. Many run up the Columbia River, so that salmon fishing is very important there (Fig. 167). Trace this river.

Most of the salmon caught are canned (Fig. 168), though some are sent away fresh, on ice. Probably much of the canned salmon that you have seen has come from the canneries either near PORTLAND, Ore., on Puget Sound, or along the coast farther north. ASTORIA, on the lower Columbia, and BELLINGHAM, on Puget Sound, are noted especially for the salmon industry.

Manufacturing

Knowing the raw products of the Western States, we can tell what the principal kinds of manufacturing are likely to be. Name the chief raw products.

1. Manufactures from products of farm, forest, and ranch

Wheat is ground into flour in many places, partly by means of water power. Quantities of grapes, peaches, apples, and other fruits are either canned or dried, and many grapes are made into wine, especially in California. Lumbering gives rise to much manufacture of boards, shingles, furniture, and other articles. In some of the larger cities, the hides of cattle and sheep are manufactured

FIG. 167. — Salmon fishermen in the Columbia River, near Astoria, showing the large salmon caught in their nets.

ıto boots, shoes, and gloves, and the ool of sheep into woolen cloth; but still reater quantities of these raw materials re sent to the East for manufacture.

Manufac- res from the oducts of e mines

Many iron and steel goods are made long the Pacific coast and in Colorado (Fig. 169), as well as at some other points. The ores of gold, silver, copper, and lead are too heavy to haul far. 'herefore, in order to get the metals from ıe ores, these are crushed and melted at ıany points. For example, the mines ear LEADVILLE send their ore to that city, but many mines in Colorado ship ore to the smelters at DENVER and PUEBLO. The buildings in which the crushing is done are called *stamp mills*, and those where the ore is melted are called *smelters* (Fig. 159). Since mining is so prominent in the West, this kind of manufacturing is carried on very extensively.

3. The future of manufacturing in the West

On the whole, manufacturing has not been so greatly developed in these states as in those farther east. It is rapidly increasing, however; and, since there

FIG. 168. — Interior of a salmon cannery on the Columbia River. A salmon hangs from the roof; and there are thousands of cans of salmon piled up on the floor.

is much water power and coal in the West, it will doubtless continue to increase. Indeed, it seems probable that parts of this region, especially along the coast, will, at no very distant time, rank high among the manufacturing districts of the country.

Fig. 169. — Blast furnaces and steel works at Pueblo, Colorado.

Transportation of goods to and from the Far West was at first provided by means of wagons, slowly toiling across the country, or by ships that sailed around South America.

Commerce

1. Harbors

The harbors along the Western coast, such as make ocean transportation possible, are not numerous, but several of them are excellent. One of the best is that of San Francisco. It has much the same importance on the Pacific coast that New York harbor has on the Atlantic. Southeast of San Francisco there is no very good natural harbor until San Diego is reached. How many hundred miles is that? North of San Francisco there is no very good harbor until the Columbia River is reached. Here is located Portland, a hundred miles from the coast on the Willamette River, near its junction with the Columbia. Farther north still, in Washington, is Puget Sound, with many fine harbors. Here are found Seattle and Tacoma.

2. Trade with foreign lands

Partly on account of these excellent ports, an extensive trade by water has sprung up with distant parts of the world. One of such regions is Alaska. Thousands of persons have gone to this northern land, and for supplies they depend mainly upon the seaports of our western coast.

The trade with Asia has also been rapidly increasing. It seems probable that, in the future, trade with Asia will have much the same importance for cities on the Pacific coast that trade with Europe has had for cities on the Atlantic coast. No doubt the Panama canal will greatly increase the trade of the West with our Eastern States and also with Europe. Why?

3. Rivers and railroads

For transportation of goods in the interior the rivers have been of little use. This is partly because they are few and for the most part shallow. It is partly because many of them descend rapidly to the sea, and therefore have rapids and falls that prevent navigation. Notable exceptions are the lower Sacramento and the Columbia, on which rivers boats carry on an extensive commerce.

Railroads, therefore, are of special value in these states; and there is a remarkably large number of them, considering the difficulty of building them (Fig. 170) and the recent settle-

ment of the country. On Figure 403, observe that each of the great cities on the coast is connected by rail, not only with the others, but also with the East, by one or more railways. Count the railroads that cross the Western States, and learn their names. Since they cross the continent they are called *transcontinental* lines (*trans* = across). When the Union Pacific, the first of these, was completed, in 1869, it was thought to be a wonderful work, and of enormous importance; but now there are so many railroads that people are apt to forget their great value.

Leading cities on the coast

1. San Francisco and cities near by

(1) *Names and locations of these cities*

The largest city in the Western States is SAN FRANCISCO (Fig. 171), located on a remarkably fine harbor, at the tip of the peninsula that shuts in the waters of San Francisco Bay. There are other important cities near San Francisco, two of which are ALAMEDA and OAKLAND. The latter, which is much the larger, is the land terminus of several transcontinental railways, and the center of large manufacturing and shipbuilding industries. Close to it is BERKELEY (Fig. 171), the seat of the University of California.

FIG. 170. — A railroad in one of the canyons in the Rocky Mountains of Colorado.

South of San Francisco is SAN JOSE; northeast of San Francisco, on the Sacramento River, is SACRAMENTO, the capital of California; and east of San Francisco is STOCKTON, at the head of navigation on the San Joaquin River. Trace these rivers, and observe the extent of the fertile Great Valley through which they flow.

(2) *Their manufactures*

The enormous crops of wheat, fruit, and wool in the Great Valley of California suggest some of the occupations in these cities. Among them are the canning of fruit, the milling of flour, the making of wine, and also of cloth.

The mineral products in this region have led to much smelting, and to the manufacture of metal goods of various kinds. In and near San Francisco, foundries and machine shops are numerous, and shipbuilding is a great industry. One of our best-known battleships, the *Oregon*, was built here.

There is much sugar refining here, the raw sugar coming from the Hawaiian Islands. The refining of petroleum is another important industry; and brewing, distilling, and the manufacture of boots, shoes, and clothing are still others.

No great amount of coal is mined in California, but, since this state produces such large quantities of petroleum, there is an abundance of oil for fuel. Coal is easily brought by train and boat from the Washington coal fields; and in the mountains there is an abundance of water power that can be used in generating electricity.

FIG. 171. — Map to show the location of San Francisco, Portland, Tacoma, and Seattle.

San Francisco Bay (Fig. 172) is the only gap in the Coast Ranges for hundreds of miles, either to the north or to the south; and since it is one of the finest harbors in the world, it is very important as the outlet to the Great Valley and the mining regions round about it. The principal products shipped from here are gold, silver, wine, fruit, wool, grain, and the various manufactured goods named above. Some of these go east by rail, but many go by boat to different parts of the world. For all these reasons this is a great shipping point; and, as our trade increases with the Philippines, the Hawaiian Islands, Japan, China, and other countries bordering the Pacific, the amount of shipping will increase.

(3) *Their shipping*

Many goods are sent from Stockton, Oakland, and other points on or near the bay; but San Francisco is the leading center for the shipping, as for the manufacturing.

The next important harbor south of

IG. 172. — The Golden Gate, as the entrance to San Francisco Bay is called. Outside is the open ocean, while within is a broad, deep bay, protected from winds and waves and making a port where the largest ships may safely anchor.

San Francisco is the port of Los Angeles, fine artificial harbor that has been made at great expense. Still farther south is the fine natural harbor of SAN DIEGO. Estimate the distance of these points from San Francisco (Fig. 171).

Coast cities south of San Francisco

Los Angeles is one of the most beautiful cities in the United States (Fig. 174). It lies in the midst of the rich orange country (Fig. 148), and there are scores of small villages, towns, and cities round about it. Among the larger of these are PASADENA, POMONA, RIVERSIDE, REDLANDS, and SAN BERNARDINO. Los Angeles is the chief distributing center for this productive region. Both San Diego and Los Angeles have attracted many people because of the climate.

The first large city north of San Fran-

FIG. 173. — A part of the water front of San Francisco, where the ferries from Oakland are all the time going and coming.

cisco is PORTLAND (Fig. 171) on the Willamette River, a tributary of the Columbia. Like New Orleans, it is situated about a hundred miles from the ocean, near the head of deep-water navigation.

3. Coast cities north of San Francisco

(1) *Portland and vicinity*

Since good harbors having connections with the interior are lacking, most of the other important towns of Oregon are inland, and Portland has grown to be the chief shipping point by water, and therefore the largest city in the state. From this point wheat, flour, fruits, wool, and lumber, the leading products of Oregon, are shipped in great quantities.

Portland has extensive manufactories of woolen goods, flour, and furniture; and SALEM, the capital, situated in the fertile Willamette Valley, also has large woolen and flour mills. Near the mouth of the Columbia is ASTORIA, where, as elsewhere along the river, the salmon industry is developed. It is also an important shipping point.

Portland, one of the most beautiful cities in the West, is growing rapidly in industry, commerce, and population, its recent growth being most remarkable. It has an extensive and increasing trade with the Orient, and also important commerce with Alaska. Portland is one of the great lumber ports of the world, and one of the leading wheat and flour shipping points on the Pacific coast.

FIG. 174. — A street in Los Angeles bordered by palms and other warm-climate trees.

Washington, unlike Oregon, has many fine harbors. On two of these SEATTLE and TACOMA (Fig. 171) are situated. Coal, lumber, grain, and hops are the principal exports. There is also extensive manufacture of lumber, furniture, and other goods along the shores of Puget Sound, especially at Seattle (Fig. 176) and Tacoma. There is a large smelter at Tacoma, to which ores are sent from even as distant a point as Alaska; and

(2) *Cities on Puget Sound*

shipbuilding is an important industry at Seattle.

The cities of Puget Sound, especially Seattle, have the bulk of the trade with Alaska, as well as much commerce with the Orient. To Puget Sound ports most of the gold, salmon, and other Alaskan products come, and from these ports the regular Alaskan steamers sail, carrying many miners and other passengers, and large cargoes of goods for use in that Northern territory. Seattle is the place of outfitting for most of the people who go to Alaska; and the rapid development of that territory has brought much business to this city. Consequently its recent growth has been remarkable. Both Tacoma and Seattle are beautifully situated on the shores of Puget Sound, and from both, the extinct volcano, Mount Rainier, is plainly visible.

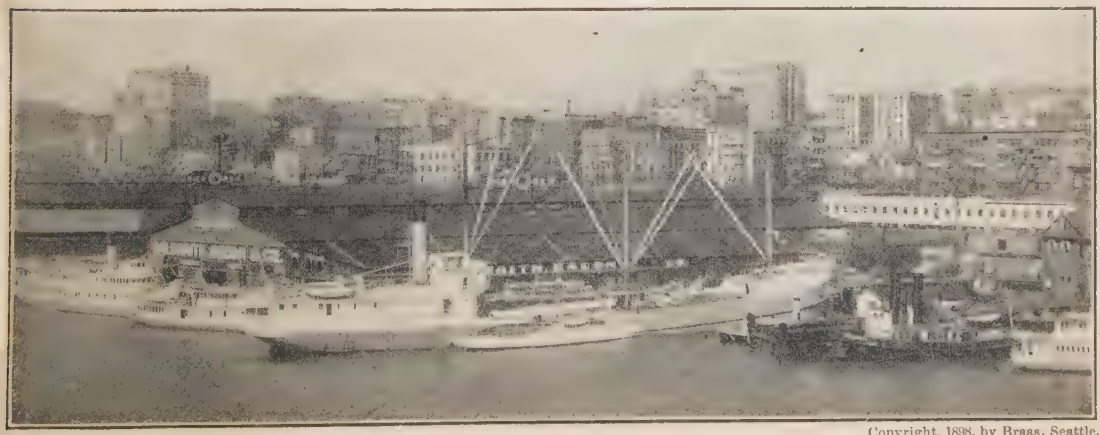
FIG. 175. — The city of Portland, with the lofty and beautiful snow-covered peak of the volcano, Mt. Hood, in the distance.

Other important cities on Puget Sound are BELLINGHAM, which has the largest salmon cannery in the world, and EVERETT. OLYMPIA, the capital of Washington, is on a branch of Puget Sound.

Leading cities in the interior

1. Denver and Colorado Springs

The greatest of the interior cities of the Western States is DENVER, the capital of Colorado. This city is located on the site of a small mining camp. Its growth is due chiefly to two conditions: (1) the numerous



Copyright, 1898, by Braas, Seattle.

FIG. 176. — A view of a part of Seattle from the water. Note the great amount of shipping in this busy port.

mining towns among the mountains near by; and (2) the near presence of water, which has made irrigation on a large scale possible (p. 111). The first condition calls for an important trade and manufacturing center somewhere in that region, and the second makes it possible to secure food in the vicinity.

Denver has now become a very important railway and manufacturing center, where ore is smelted, and machinery, flour, and cloth are manufactured. It is also of importance as a health resort, for the altitude of more than five thousand feet, and the dry climate, are especially favorable to persons suffering from diseases of the lungs. COLORADO SPRINGS, south of Denver, at the base of Pike's Peak (Fig. 177), is one of the leading health resorts in the country.

FIG. 177.— Pike's Peak from the Garden of the Gods, near Colorado Springs.

2. Pueblo

PUEBLO, a trade and manufacturing center, is situated south of Denver, where the Santa Fé Railway meets the Denver and Rio Grande. Here much ore is smelted, and iron goods are manufactured (Fig. 169). It is the nearness to coal and iron ore that makes the latter industry profitable.

3. Spokane

SPOKANE, in eastern Washington, is situated on the Spokane River at a point where there is a large waterfall (Fig. 178). This supplies abundant water power, so that there is much manufacturing. Since the city lies in the midst of the fertile wheat region of eastern Washington, flour milling is extensive, as at Minneapolis. From the forests of Idaho the city receives lumber; and, as already mentioned, it has been greatly benefited by the rich mines of the nearby Cœur d'Alene district. Spokane is also an important railway center and distributing point for a wide area of country. It has grown very rapidly, and is now second in size among the interior cities of these states. Two other cities in the interior of Washington are WALLA WALLA, in the southeast, and NORTH YAKIMA in the Yakima Valley.

4. Butte, Anaconda, and Great Falls

Much of the ore mined at BUTTE (p. 117) is crushed and reduced in smelters within the city limits. But much also is sent to the smelters of ANACONDA, and a large part of the Montana ores go to the smelters at GREAT FALLS.

BUTTE is a good example of a flourishing *mining center*.

When a rich vein of metal is discovered many men are needed to work it; some to dig out the ore, others to crush it in the stamp mills,

and still others to reduce it in the smelters. Thus a good-sized town may quickly spring up about a single rich vein. Very often, too, where there is one rich mineral vein, there are others close by, so that a group of mines may be opened near together. Then a mere mining camp may quickly become a large city. That is what happened in the case of Butte. It is a great copper-mining center, and, since the ore contains some silver, this precious metal is also produced.

There are many mines at Butte, even within the city limits. Some of the shafts reach thousands of feet down into the earth, and the tunnels that are left underground when the ore has been removed are, taken together, hundreds of miles in length. Hundreds of men there spend most of their lives far underground, coming up to the surface only to eat and sleep. Many men are also employed in the smelters. There are scores of such mining centers in the West, although most of them are only small towns, or "camps."

5. Other cities and towns in the interior

Several other interior cities, such as SALT LAKE CITY and OGDEN, have already been mentioned (p. 112). Find others on the map. Most of these owe their importance chiefly to mining, farming by irrigation, and grazing. Name the capitals of the Western States. Which of these have been mentioned, and in what connection?

Locate BOISE, the capital of Idaho, a city in the midst of a fertile irrigation district.

Scenery in the West

1. The most noted places

In many places among the Western mountains are scenes that compare favorably with those of the Alps in Switzerland, which attract so many American travelers. Strangely formed cliffs, deep canyons, and great waterfalls are present without number. There are also snow-capped mountains and wooded valleys. Many of the wonderful gorges (Fig. 170), and canyons through which the Denver and Rio Grande Railway winds its way across Colorado, may be viewed from the railway. Among all the interesting places in the West, however, are three that easily surpass the others in grandeur. These are the Yellowstone National Park, the Grand Canyon of the Colorado, and the Yosemite Park.

FIG. 178. — The falls in the Spokane River, around which the city of Spokane has grown.

2. The Yellowstone Park

(1) *Its hot springs and geysers*

The Yellowstone Park, chiefly in Wyoming, is a tract of land larger than Connecticut, which the government has set aside as a national park. It is often called the "Wonderland of America."

Fig. 179. — "Old Faithful" geyser in eruption.

A stage road leads from the Northern Pacific Railway to the Mammoth Hot Springs on the northern side of the park. There is also a stage route from the Oregon Short Line on the western side. At the Hot Springs heated water flows from openings in the hillside, down over beautiful colored terraces, which have been built by a deposit of mineral matter carried in solution in the hot water. Farther on are springs of boiling water; also springs of boiling mud of different colors; and here and there is a spring, called a *geyser*, from which hot water and steam now and then burst forth with great violence, even to a height of one hundred to two hundred feet (Fig. 179).

"Old Faithful," one of the most regular of these geysers, "plays" at intervals of sixty-five minutes. Then a column of steam and hot water shoots upward from one hundred to one hundred and thirty feet. Other geysers discharge at much longer periods, as two to three hours, or several days; and in some of the geysers the roar of escaping steam lasts for hours after the water has been expelled. The outbursts are really explosions of steam, the heat being supplied from the depths of the earth. Some of the springs are on a level with the ground, so that a visitor must be on the lookout lest he step into one; others are surrounded by rims several feet high.

Beyond the geyser basins lies the Yellowstone Lake, a beautiful sheet of

Fig. 180. — The great falls of the Yellowstone, three hundred and eight feet high.

FIG. 181.—A grizzly bear in the Yellowstone National Park.

water, nestled in the mountains, nearly eight thousand feet above the sea. Its waters flow northward, forming the Yellowstone River, a tributary of the Missouri.

(2) *Its lake, falls, and canyon*

To many persons, the falls and canyon of this river are the greatest wonders of the park. Soon after leaving the lake, the stream narrows and quickens, and then the water leaps one hundred and nine feet directly downward. A short distance farther on it tumbles three hundred and eight feet, or almost twice the height of Niagara Falls (Fig. 180). The river then runs between steep walls, which rise one thousand feet above it. This canyon is somewhat winding, with numerous bold cliffs jutting far out into the abyss. From these cliffs grand views may be obtained. Far below, one sees the silvery stream, too distant to be heard as it dashes along. Across the chasm, a half mile away, dark green pines fringe the bank, and between the water and these woods are gorgeously colored rock walls, having all the tints of the rainbow.

In this park hunting is forbidden, and for that reason wild animals are numerous and quite tame. When driving through the park one can sometimes see elk by the roadside; and bears (Fig. 181), both grizzly and black, come close to camps and hotels for food. There are many other animals here also, among them some bison, or buffalo (Fig 182).

(3) *Its animals*

One portion of the Grand Canyon of the Colorado, in Arizona, may be reached by the Atchison, Topeka, and Santa Fé Railway. The wonderful Yellowstone Canyon, just described, and the canyons on the Denver and Rio Grande in Colorado, are pygmies compared with this (Fig. 183).

3. The Canyon of the Colorado River

As one first looks out into the canyon, one sees nothing but rock towers, pinnacles, many colored layers of rock, and apparently bottomless depths. When he finally reaches a point from which the threadlike stream may be spied at the bottom of the abyss, a mile below,

FIG. 182.—Bison feeding in the Yellowstone National Park.

it seems almost impossible that so little water could have wrought such mighty havoc. Yet this river has been slowly cutting its way into the rocks for thousands of centuries, and this great gash, or canyon, is the result.

The difficult path which leads to the bottom of the canyon is seven miles long, and the trip down and back is a full day's journey; but without making it, one fails to appreciate fully the marvelous carving, sculpturing, and coloring of the canyon walls. At the bottom the scene is entirely changed; and, as one looks upward, to see himself shut in by walls which seem to extend to the very heavens, his own littleness and the immensity of the works of Nature are wonderfully impressed upon him.

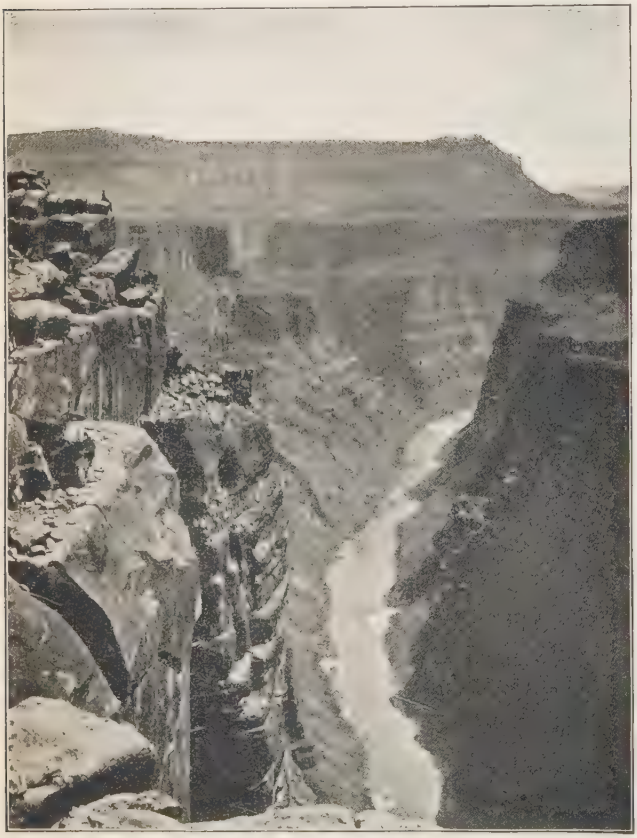


Fig. 183. — The Canyon of the Colorado, a gash of over a mile in depth cut by the river in the solid rock.

For three hundred miles the Colorado River flows at the bottom of this deeply cut canyon, which forms a very complete barrier to travelers. A person living on one side, where he could see across to the other side, ten miles away, would need to travel hundreds of miles to reach that side; for no railways, roads, or paths can cross it. The government has set aside this wonderland also as a national park for the enjoyment of the people.

4. The Yosemite Park

The remarkable Yosemite Valley, on the western slope of the Sierra Nevada Mountains, in California, presents very different views from those thus far described. This is the region of the High Sierras, with their deep canyons and granite peaks, one of which, Mt. Whitney, 14,898 feet high, is the highest point in the United States, not including Alaska. Some of the most magnificent views in the High Sierras are formed by waterfalls of the Yosemite Creek and Merced River, in Yosemite Park (Fig. 184). In one mighty leap the water descends fifteen hundred feet, forming the Yosemite Falls, which are famed the world over. Below this are some cascades, then another fall of four hundred feet.

Only a few miles from the falls are the giant trees of the world, the largest of which is 35 feet in diameter and 300 feet high. The Yosemite region, like the Yellowstone, is a public park, and is visited every year by thousands of people, including many Europeans.

5. Other wonderful scenery

It would require many pages to describe all the wonderful scenes in Western United States, or even to make a list of them. But mention must be made of the Shoshone Falls in Idaho,

FIG. 184. — The Yosemite Valley, bordered by lofty granite precipices, over one portion of which the water leaps to form the far-famed Yosemite Falls.

Lake Chelan in Washington, Lake Tahoe in the Sierra Nevada, and Crater Lake in Oregon — the great crater of an extinct volcano in which a beautiful lake is now situated. Also the Rainier National Park, on the slopes of Mount Rainier, deserves mention with its beautiful valleys, large glaciers, and grand mountain scenery.

6. The Red Men

Many people from the East are much interested in the Indians, who live on *Indian reservations*, or land reserved for them by the government. Among the most interesting of these are the Pueblo Indians in Arizona, who still live after the manner of their ancestors. Their homes, called *pueblos*, are built of sun-dried clay, or adobe, and in some cases are entered from the roof by means of ladders.

The pueblos were intended as strongholds for the storing of grain, and for protection against wandering tribes, who might

FIG. 185. — The cave dwellings of the southwest. The Indians dug these caves out of the solid rock and lived in them.

attack them at any time. Other Indian houses, the *cliff dwellings,* were built on the sides of cliffs beneath overhanging ledges; and still others, *cave dwellings,* were in caves dug out of the rocks by the Indians (Fig. 185). These cliff and cave dwellings are no longer occupied.

Review Questions

1. What was the effect of the discovery of gold in California upon the population of these States? 2. What is their present population? 3. Explain how their far western position has been one reason for so small a population. 4. Explain how their many mountains and plateaus have been a second reason. 5. Show how the lack of rain has been a third reason. 6. Where are the heaviest rains in this group of states? Why there? 7. Tell about the agriculture in that section. 8. Why is there so little rain in southern California and further east? 9. How is irrigation planned? 10. What are the farm products in Southern California? 11. How is the fruit cared for, and what is done with it? 12. What can you tell about the Great Valley? 13. How is irrigation planned near Denver? 14. Explain the expense of such irrigation, and its advantages. 15. Tell about agriculture in Utah. 16. In other irrigation sections. 17. How is our national government aiding irrigation in these states? 18. What kinds of animals are raised in the arid parts of these states? 19. How is sheep ranching carried on? 20. What are the sources of profit? 21. Name the most valuable minerals mined in these states. 22. Describe the methods of mining gold. 23. Tell about the mining in Nevada. 24. In Colorado. 25. In Montana. 26. In other western states. 27. What about coal, petroleum, and other minerals in these states? 28. Describe the work of the prospector. 29. Why is there a special need of lumber in these states? 30. Locate the principal forests. 31. Name the kinds of trees, and tell about their size. 32. Describe the method of lumbering. 33. What is done with the logs and the lumber? 34. What do you know about the fishing? 35. What are the principal manufactures from the products of the farm, forest, and ranch? 36. From the products of the mines? 37. What is the prospect for manufacturing in the West? 38. Tell about the principal harbors on our Pacific coast. 39. About our trade with distant countries. 40. State the value of the rivers and railroads for transportation of goods. 41. Name and locate the principal cities near San Francisco. 42. What are the principal manufactures in that section? 43. What can you say about the extent of the shipping? 44. Tell about the coast cities south of San Francisco. 45. About Portland and vicinity. 46. The cities on Puget Sound. 47. Denver and Colorado Springs. 48. Pueblo. 49. Spokane. 50. Butte, Anaconda, and Great Falls. 51. Other cities and towns in the interior. 52. Name and locate the three places in the West most noted for grand scenery. 53. Tell about the hot springs and geysers of the Yellowstone Park. 54. About its lake, falls, and canyon. 55. Its animals. 56. Give your impression of the appearance of the Grand Canyon of the Colorado River. 57. Of the Yosemite Park. 58. Name and locate other places in the West where there is wonderful scenery. 59. Tell about the Indians.

Review Questions by states

Montana (Mont.). 1. What industries are carried on in the eastern part? Why? 2. In the western part? 3. Name the chief cities in Montana, and tell how each is important. 4. What two large rivers drain this section? 5. Through what states do they flow before reaching the Gulf? 6. Draw an outline map of the state and, as each of the other states is studied, do the same for that.

Wyoming (Wy.). 7. What industries are carried on in this state? 8. What cities are mentioned? In what connection? 9. Find the Yellowstone Park, and tell for what it is noted. 10. This state is represented as having little grain, on the maps showing the principal grain-producing regions (Figs. 239 and 241). Why?

Colorado (Col. or Colo). 11. Examine Figures 239 to 241 to see what are the industries of Colorado. 12. Why is there more water for irrigation in this state than in some of the others? 13. Trace the divide between the Pacific and Atlantic drainage as it crosses Colorado. Trace it northward to Canada and southward to Mexico. 14. Name the cities in Colorado mentioned in the text, and tell how each is important. 15. Find the population of Denver (see Appendix). Compare it with that of other large cities in the Western States; also with that of New Orleans and of Buffalo.

New Mexico (N.M.). 16. Locate Santa Fé; Albuquerque. 17. What rivers drain this state? 18. Compare its area with that of Pennsylvania. 19. Its population.

Arizona. (Ariz.). 20. What can you tell about the large river that crosses Arizona? 21. What cities and industries are mentioned? 22. What minerals are obtained here? 23. How does the largest city compare in size with the largest in New Mexico? In Colorado? 24. Find the population.

Nevada (Nev.). 25. For what mines was Nevada famous? 26. Find its present population (see Appendix). Why are there so few people? 27. What about its present industries? 28. How may the government irrigation work be of special value to this state?

Utah. 29. Why is the Great Salt Lake salt? 30. What are the industries of this state? 31. What cities are mentioned? Tell about each. 32. Examine the maps, Figures 249 to 274, to see what products come from Utah.

Idaho (Ida.). 33. What metals are obtained? (See Figs. 259 to 264.) 34. What great river drains Idaho? 35. What mountain range forms the eastern boundary?

Washington (Wash.). 36. Compare the coast line with that of Oregon; of Maine. 37. What about the rainfall of this state? Compare it with that of Montana (Fig. 276). Why this difference? 38. What effect has the rainfall upon the industries? What are the principal industries? 39. What cities are mentioned in the text? What can you tell about each?

Oregon (Ore.). 40. What advantage do you see in the location of the largest city? 41. Compare it in size with Denver; New Orleans. 42. Examine the maps (Figs. 239 to 265) to see what is produced in Oregon. 43. What industries are mentioned in the text? 44. What cities are mentioned, and in what connection?

California (Cal.). 45. What about the rainfall? 46. What two rivers drain most of this state? 47. Describe the relief. 48. Name the cities mentioned; for what is each important? 49. What industries are found in this state? 50. What advantage do you see in the location of San Francisco? 51. Compare its population with that of Boston; Denver. 52. What caused the early growth of California? What effect has that had on other Western States?

General Review Questions

53. Which state has the largest population (see Appendix)? The smallest? 54. Compare each of these two with Massachusetts and New York in population. 55. Name and locate the eight largest cities (see Appendix). 56. Which of the five groups of states has the densest population (Fig. 235)? Which the least dense? What reasons can you give?

Suggestions

1. Read about the expedition of Lewis and Clark from St. Louis to the Pacific coast in 1803–1806. 2. Find out about the early settlement, and dispute about the ownership, of Oregon. 3. What is the origin of the expression "to pan out"? 4. Mention several of the advantages and disadvantages of having no rain for several months at a time, as in southern California. 5. Make a collection of minerals for the school. 6. Should the ditch that is to irrigate a certain field skirt its upper or lower edge? Why? 7. Which is the more easily irrigated, nearly level land, or land that is rough and hilly? Why? 8. Is southern California as liable to cold snaps as Florida? Why? 9. Make a list of articles made of wool. 10. What have been the objections to admitting Arizona and New Mexico into our Union as states? 11. Write a story describing an imaginary visit to southern California. 12. Make a drawing of the Western States, putting in the principal mountain ranges, rivers, and cities.

General Review Questions for United States

1. Name the principal crops of the United States, and tell in which section each is raised. (Consult figures 249 to 259.) 2. Do the same for mineral products. 3. For other raw products. 4. For manufactured articles. 5. Name the ten largest cities in their order (see Appendix). For what is each important? 6. State some ways in which the rainfall influences the occupations of the people. 7. The temperature. 8. State clearly the influence of the absence of forests on the prairies. 9. Of the rich mineral deposits in the West. 10. In what ways have the Great Lakes been of value? 11. Name some of the cities that have been benefited by them. 12. In what ways have the Mississippi River and its two largest tributaries been of value?

13. State some of the natural advantages that have aided the growth of Boston; New York; Buffalo; Philadelphia; Baltimore; New Orleans; Cleveland; Pittsburg; Detroit; Chicago; St. Louis; and San Francisco. 14. Can you name some other cities that have also been influenced by their surroundings? 15. Which is the largest state (see Appendix)? The second in size? The smallest? The next to the smallest? 16. Which state has the largest population (see Appendix)? The second largest? The smallest? Next to the smallest? 17. What states border Mexico? Canada? 18. Draw a map of the United States.

SECTION III. TERRITORIES AND DEPENDENCIES OF THE UNITED STATES

Map study

1. On the map of the world locate (*a*) Alaska; (*b*) Porto Rico; (*c*) The Philippine Islands; (*d*) The Hawaiian Islands. 2. On the map of North America (Fig. 2) locate Alaska and Porto Rico. 3. Bound Alaska. 4. What large river crosses Alaska? 5. Name the largest islands in the Philippines (Fig. 196).

Our increase of territory

At the close of the Revolutionary War the United States consisted of thirteen small colonies, extending along the Atlantic coast from Maine to Georgia. Our new nation laid claim also to the land far into the wilderness, even to the distant Mississippi. Beyond this was French and Spanish territory, while the whole Mississippi Valley was occupied by Indians.

By purchase, by war, or by treaty, we have gained possession of all the land between the Atlantic and the Pacific, which has thus far been described. Recall what was said about the growth of the United States on pages 6 and 7 (see also Fig. 10).

Our growth has continued so that now our territory does not end with the boundaries of the United States proper. In 1867 we obtained Alaska, and in 1898 we came into possession of a number of islands, some of which are on the other side of the globe. Since these lands form a part of our territory, a study of them may come at this point.

1. Alaska (Fig. 186)

Purchase of Alaska, and why it at first seemed unwise

Alaska (Fig. 186), which was purchased from Russia in 1867 (for $7,200,000), is almost one fifth as large as the United States. Measure to see how far this territory is from our nearest ports, on Puget Sound. Most people thought it very foolish to buy a territory so far away and so far north.

A large part of Alaska is mountainous (Fig. 187), and much of it is in the frigid zone, as you can see. About how much of it? In addition, at that time we already had more land than we knew what to do with. For these reasons, most persons thought that the purchase of Alaska was very unwise. They even called it "Seward's folly," because Secretary Seward, who was in President Lincoln's cabinet, was the one who chiefly urged the purchase.

Reasons why it was a wise purchase

As it has turned out, however, it was a wise purchase, for Alaska has become an important part of the United States, and is developing rapidly.

1. Agriculture and lumbering

Most of Alaska is too mountainous and too cold for agriculture. Yet the summers are warmer than one might suppose, and some parts of the country are level enough for farming.

FIG. 186.

WAYNE SANS

FIG. 187. — The snow-covered mountains of the St. Elias chain, Alaska.

Already some crops are raised there, and, doubtless, portions of Alaska will some day produce the more hardy grains and vegetables. Doubtless, also, grazing will become important, for there are extensive natural pastures on which sheep and cattle can feed. In addition, the forests will some day be of value, for there are large areas covered with timber.

2. Fishing

At present the fishing proves the wisdom of the purchase of Alaska much more than the industries just mentioned.

(1) *Sealing*

The catching of seals was the first industry of consequence there. One kind of Alaskan seal, called the *fur seal*, has a very fine fur, which is highly prized for making muffs and cloaks. The skins are especially valued because of their warmth and beauty, and as there is no great number of them, they are very expensive. A sealskin cloak costs several hundred dollars. Already more than seven times as much money has come from sealing as was paid for the entire territory of Alaska.

During the greater part of the year the fur seals swim about in search of food; but in the spring, during the breeding season, they resort to the Pribilof Islands (Fig. 188). The United States government prohibits all persons from killing the fur seal, except one company, which pays a special tax for the privilege of securing a certain number each year. At the proper season the men select a number of seals and drive them off for slaughter, much as sheep would be driven. There are so few of these

FIG. 188. — A group of fur seals on the shore of the Pribilof Islands.

seals, and they are so easily killed, that if the government did not protect them, all would soon be destroyed.

(2) *Catching of salmon and other fish*

More recently the salmon have come to be of great value. Here, as in the Columbia River (p. 122), tens of thousands of salmon go up the streams every summer, in order to lay their eggs in fresh water. Indeed, people in that country, when wanting salmon for food, often kick them out of the small streams, instead of catching them in the usual way.

These fish are caught and taken to the canneries, where they are cooked and placed in cans for shipment to all parts of the world. Already the salmon taken from the Alaskan streams have yielded more than ten times as much money as Alaska cost us.

Among other fish, halibut and codfish are common on the shallow banks along the Alaskan coast, and vessels from our Western States now go there to catch them.

3. Mining

It is, however, gold that has attracted most attention to this territory. The famous *Klondike* region, in northwestern Canada, first drew large numbers of men to the country, since the easiest route to the Klondike was across Alaska. Thousands of prospectors rushed there in 1896 and 1897, just as they did to California in 1849.

Valuable deposits of gold have since been found at NOME, near JUNEAU, in the Tanana Valley, and in other parts of Alaska. Alaska now produces two or three times as much gold each year as we paid to Russia for the entire territory.

FIG. 189. — Miners fording the icy waters of an Alaskan river on the way to Klondike. Two of them are harnessed to a wagon containing their supplies.

One great difficulty has been to reach the gold fields and to carry supplies to them. The early miners were exposed to great hardships on their journey to the Klondike region. Now, however, by the help of a short railway across the mountains, one can go into the interior of Alaska much more easily. Another railway is being built across the mountains along the Copper River Valley. In summer many miners go up the Yukon River in boats, but this is impossible in winter when the river is frozen. Trace the course of this river. How does the Yukon River compare in size with the Ohio (see Appendix)?

Besides gold, there are also very extensive deposits of copper and coal; but as yet these minerals have not been

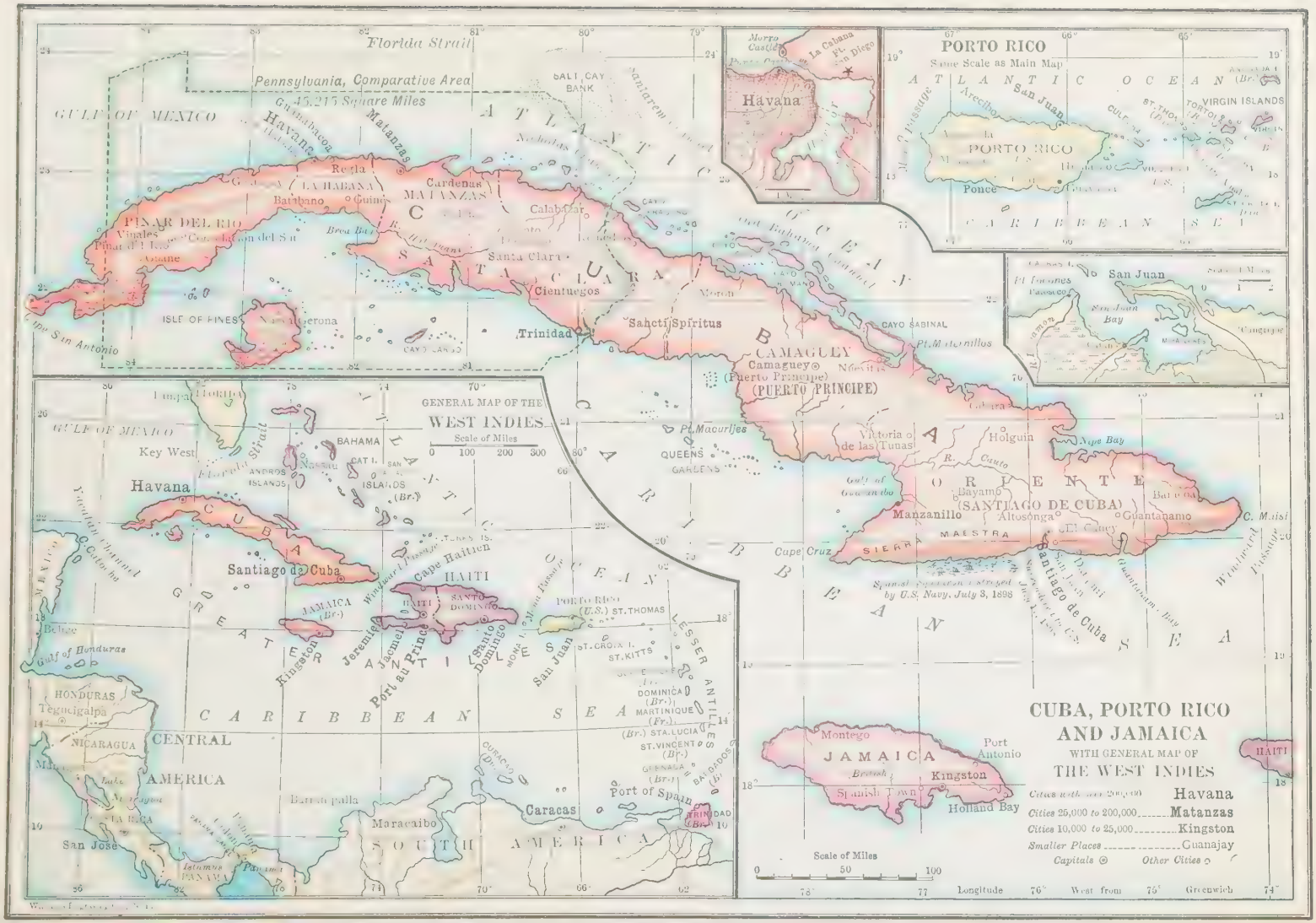

CUBA, PORTO RICO AND JAMAICA
WITH GENERAL MAP OF THE WEST INDIES
Cities with over 200,000 Havana
Cities 25,000 to 200,000 Matanzas
Cities 10,000 to 25,000 Kingston
Smaller Places Guanajay
Capitals
Other Cities
Scale of Miles
0 50 100
Longitude 78° 77 76° West from 75° Greenwich 74°
GENERAL MAP OF THE WEST INDIES
Scale of Miles
0 100 200 300
PORTO RICO
Same Scale as Main Map
ATLANTIC OCEAN
CARIBBEAN SEA
VIRGIN ISLANDS
PORTO RICO
Ponce
San Juan
Arecibo
Havana
Morro Castle
La Cabana
Pt. San Diego
Pennsylvania, Comparative Area
45,215 Square Miles
Florida Strait
GULF OF MEXICO
ATLANTIC OCEAN
SALT CAY BANK
Matanzas
Cardenas
LA HABANA
Batabano
Guine
PINAR DEL RIO
Vinales
Pinar del Rio
Guane
Cienfuegos
Santa Clara
Trinidad
Sancti Spiritus
ISLE OF PINES
Nueva Gerona
CAYO SABINAL
Pt. Maternillos
CAMAGUEY
Camaguey
(Puerto Principe)
(PUERTO PRINCIPE)
Pt. Macurijes
QUEENS GARDENS
Victoria de las Tunas
Holguin
Nipe Bay
Gulf of Guacanbo
Bayamo
(SANTIAGO DE CUBA)
Manzanillo
Altosonga
Guantanamo
C. Maisi
Cape Cruz
SIERRA MAESTRA
Santiago de Cuba
Spanish squadron destroyed by U.S. Navy, July 3, 1898
GULF OF MEXICO
Key West
Florida Strait
BAHAMA
Nassau
CAT I.
ANDROS ISLANDS
Havana
CUBA
Santiago de Cuba
Cape Haitien
HAITI
SANTO DOMINGO
JAMAICA (Br.)
Kingston
Jacmel
Port au Prince
Santo Domingo
San Juan
PORTO RICO (U.S.)
ST. THOMAS
ST. CROIX I.
ST. KITTS
DOMINICA (Br.)
MARTINIQUE (Fr.)
STA. LUCIA (Br.)
ST. VINCENT (Br.)
GRENADA (Br.)
BARBADOS (Br.)
TRINIDAD (Br.)
Port of Spain
Caracas
Maracaibo
Barranquilla
CURACAO (D.)
HONDURAS
Tegucigalpa
NICARAGUA
Managua
Lake Nicaragua
COSTA RICA
San José
PANAMA
Panama
Belize
Gulf of Honduras
CENTRAL AMERICA
SOUTH AMERICA
GREATER ANTILLES
LESSER ANTILLES
CARIBBEAN SEA
Windward Passage
Mona Passage
Yucatan Channel
Cayman Islands
Montego
JAMAICA
Port Antonio
Kingston
Spanish Town
Holland Bay
HAITI
San Juan
Pt. Fajardo
San Juan Bay
Cangrejos
Guantanamo Bay

FIG. 100

mined to any great extent. At present there are almost no roads, and even very few trails; and until better means of transportation are provided there can be little development of these valuable mineral resources.

The scenery

Alaska is justly famous for its grand scenery. The journey along the Alaskan coast is one of the most wonderful steamboat voyages in the world. There are so many islands that, for a thousand miles, the steamers sail between lofty, forest-covered mountain walls, with snow-capped peaks in the background, and upon waters whose surface is as quiet as a lake.

Beyond Juneau the mountains become higher, and many of the peaks are more than three miles high. The loftiest of all is Mt. McKinley, the highest mountain on the continent; but Mt. St. Elias, and Mt. Wrangell, an active volcano, are also very high.

The snows are so heavy that most of the mountains are snow-covered throughout the year (Fig. 187); and hundreds of glaciers descend through the mountain valleys, some even entering the sea and breaking off to form icebergs. The largest glaciers on the continent are found in this region. One of the best known of these, the *Muir Glacier*, is not far north of Sitka.

Principal towns

In such a new country there are, of course, no large cities. The oldest and best known is the quaint town of SITKA, the former capital. JUNEAU, which was made the capital a few years ago, besides being near valuable gold mines, is on the route to the Klondike. It is, therefore, an important center. Not far north is SKAGWAY, where miners leave the steamer to take the *White Pass* Railway to the headwaters of the Yukon.

There are also many mining towns, such as DAWSON, in the Klondike region of Canada, and NOME, on Bering Sea. In 1898, the beach sands at Nome were found to contain gold, and in a single season a good-sized city had grown on the beach. Large numbers of men lived in tents, and others in rough wooden shanties. In 1900 there were more than twelve thousand people here; but three years afterward, there were only about one third as many. In such a mining district a town may grow up in a year and become deserted in a single season. Many of the people spend only the warmer season in Alaska, going up there in the spring, and returning to the states in the autumn.

2. CUBA AND PORTO RICO (FIG. 190)

On his first voyage, Columbus discovered some islands southeast of the United States (Fig. 2). These were later called the West Indies, because, as you remember, Columbus thought he had reached India.

How these islands happen to be under our guidance

The Spaniards took possession of these islands, and long held the larger ones as colonies. The people were not content under Spanish rule, and there was much trouble and bloodshed. Yet Spain held Cuba and Porto Rico until 1898. At that time the Cubans were fighting a war for independence, and the United States went to their aid. This quickly brought on a war between our country and Spain, called the Spanish-American War. Spain gave up Cuba and Porto Rico at the end of the war. Our government then took control of Porto Rico, and holds it still; but Cuba was allowed its independence, under our protection. It is not, therefore, a part of our territory, as Porto Rico is.

Spanish is the language spoken on both these islands, and many of the people are Spaniards; but there are also many negroes and many half-breeds.

FIG. 191. — A native hut in Cuba.

Area and surface features

Cuba is the largest island in the West Indies, being nearly as large as Pennsylvania, although much longer and narrower. Porto Rico is somewhat smaller than Connecticut. Each of these islands is quite mountainous, but there are broad valleys and small, fertile lowlands.

Climate

Both islands lie entirely within the tropical zone, and on the lowlands neither snow nor frost are known. On account of the warm climate many people from the United States go to Porto Rico and Cuba to spend the winter. There is an abundance of rain in most parts of the islands; but the rainfall is especially heavy on the northeastern, or *windward*, slopes, for it is from this direction that the damp ocean winds chiefly come.

Agriculture

Large portions of Porto Rico and of Cuba have been cleared and cultivated. This is especially true of Porto Rico, which is really an island of farms. Indeed, agriculture is the chief industry on both islands.

1. The farm products

As in all the West Indies, the principal crop is sugar cane (Fig. 192), and this industry is carried on much as it is in Louisiana (p. 53). A second important crop is tobacco, for which Cuba is especially noted; and great numbers of cigars are manufactured in these islands.

Upon the hill slopes, much coffee is produced, and some tea and cocoa. Spices, including nutmeg, cinnamon, and ginger, are products of the West Indies; also pepper, cardamom, vanilla, and pimento or allspice. Bananas, oranges, limes, pineapples (Fig. 193), and cocoanuts are grown in great quantities, and also many vegetables. There is much pasture, too, and many cattle are raised.

FIG. 192. — A train on a sugar plantation in Porto Rico drawing the sugar cane to the sugar mill.

2. Their special value to the United States

Our soil and climate enable us to raise almost all the farm products that we need. But some that we cannot raise extensively are produced on these islands

Some of these are tea, coffee, sugar, spices, and tropical fruits. The islands also send us fruits and vegetables in midwinter. Thus it is of great value to us that we have such close relations with Cuba and Porto Rico.

FIG. 193. — Pineapples growing in Porto Rico.

Other raw products

In Cuba there is also much valuable timber, including mahogany, ebony, and fustic, which produces a yellow dye. There are also some valuable minerals in Cuba, especially copper and iron.

Principal cities

The largest city of the West Indies is HAVANA, in Cuba, for a long time the center of Spanish rule in America. Another Cuban city is SANTIAGO, where the Spanish ships were sunk in the war of 1898; and a third is MATANZAS.

FIG. 194. — A view along the Canal route, in 1909. When this great cut in the earth is deep enough, it will be flooded with water and large ocean ships will then sail through it.

The two principal cities of Porto Rico are PONCE, on the southern coast, and SAN JUAN, on the northern. The latter is the largest city and the capital of the island.

3. PANAMA CANAL ZONE (Fig. 222)

Its location and cost

One of the most interesting regions controlled by the United States is a strip of land, ten miles wide, across the Isthmus of Panama, which connects North America with South America (Fig. 2). The city of PANAMA is at the southern end, and COLON at the northern. It is here that our government is now digging the Panama Canal (Fig. 194), so that even the largest ocean ships may pass from one ocean to the other.

The distance across the isthmus, along the line of the canal, is less than fifty miles, and the elevation but three hundred feet at the highest point; but it will cost our government several hundred million dollars to complete the work.

Advantage of the canal

This is one of the greatest public works our government has ever undertaken, and it will prove of great service to the entire world. A steamer bound from London to San Francisco will save five thousand miles by taking this new route, while eight thousand miles will be saved in going by boat from New York to San Francisco. The canal will be of benefit to all our seacoast towns, and will also aid in the distribution of the products of the interior.

4. THE HAWAIIAN ISLANDS (Fig. 196)

How they came into our possession

Far out in the Pacific, between the United States and the Philippines, lies a group of small islands called the Hawaiian Islands. Formerly they were a little independent kingdom, but in 1893 the people, who are Malayans, rebelled and formed a republic. Later they asked to be made a part of the

FIG. 195. — The "Lake of Fire" in the crater of one of the Hawaiian volcanoes. This is red hot lava, or melted rock, that rises from within the earth.

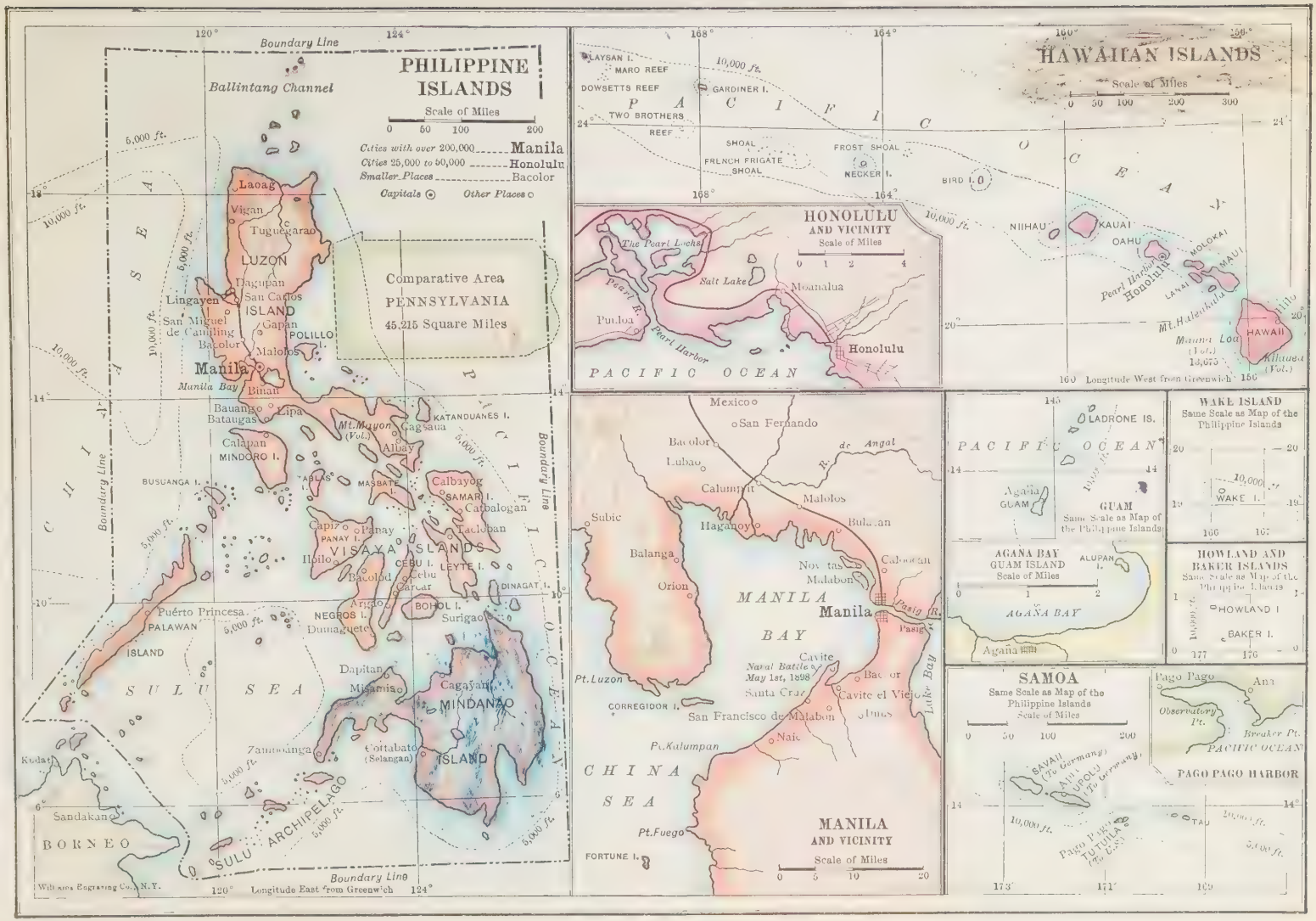


FIG. 196.

United States' Dependencies in the Pacific.

FIG. 197. — Natives cutting sugar cane on a plantation in the Hawaiian Islands.

United States, and in 1898 this was done.

These islands are small, and are scattered over a distance of more than a thousand miles. They are made of lava, which has risen from within the earth, and on Hawaii (Fig. 196), the largest island, there are two volcanoes that are still active (Fig. 195). Every few years one of these bursts forth in eruption, and then vast quantities of melted rock, or *lava*, pour down the slopes toward the sea.

Why they are of special value to us

Such islands, so far away, might seem to be of little value. Yet we have many vessels that make the long voyage from our Western seaports to China, Japan, Australia, and the Philippines. They now and then suffer serious accidents on the way, and they also are in danger of getting out of coal and other supplies. These islands lie on the route that some of these vessels take, about a third of the way between the United States and Asia. For these reasons the Hawaiian Islands are of great importance to us; they serve as a stopping place, where repairs can be made, and where coal and supplies can be obtained.

Chief products and cities

In what zone do these islands lie? What then is their climate? Many years ago white men introduced here the crops of the Old World, and the larger islands have become quite productive. The principal crop is sugar cane (Fig. 197); but

FIG. 198. — The grass hut of a native in the Hawaiian Islands.

Fig. 199. — Five native Hawaiian girls.

coffee, tropical fruits, and rice are also raised.

The two leading cities are Honolulu, on the island of Oahu, and Hilo, on Hawaii.

5. Other Small Island Possessions

Samoa

Tutuila, one of the Samoan Islands, together with the Manua Group, is owned by the United States. It is of little value to us except for the coaling station at the harbor of *Pago Pago*. Apia, the chief city in the Samoan Islands, is on the island of Upola, which belongs to Germany.

Guam

As one of the results of the war with Spain, we obtained the island of *Guam* (Fig. 196), one of the Ladrones, or Robbers' Islands, some distance east of the Philippines. Like Tutuila, Guam is of little service to us except as a coaling station for vessels.

Other islands

Our country has obtained possession of several other small islands in the Pacific. These are *Marcus Island*, northeast of Guam; *Wake Island*, between Guam and the Hawaiian Islands; *Midway Islands*, northeast of the Hawaiian Islands; and two small islands, *Baker* and *Howland*, nearly on the equator south of the Midway Islands. None of these is of special importance.

6. The Philippine Islands (Fig. 196)

How these islands came into our possession

The Philippine Islands were obtained also as a result of the Spanish-American War. At first they were governed entirely by the United States, but now they have their own legislature, and partly govern themselves.

Find these islands on Figure 196; also on a globe. Name and locate the larger islands (Fig. 196). How would you reach them from San Francisco? From New York? Through what waters would you pass?

Fig. 200. — A native Philippine girl.

There are more than three thousand islands in the group, or archipelago, some of them being very small. The largest two are *Luzon*, which is nearly as large as Pennsylvania, and *Mindanao*, which is a little smaller than Luzon. How far apart are they? The area of all the islands together is about three times that of Pennsylvania. Luzon has more than half as many people as Pennsylvania, and all the islands together have about eight million inhabitants.

Area and population

There is a great mixture of people in the Philippine Islands. Some are Spanish, some, Americans, and many are Japanese and Chinese; but most of the inhabitants are natives (Fig. 200).

Kinds of people

There are several races among the natives, many of whom are partly or wholly civilized. Of these the *Tagalogs* are most advanced, having learned the arts of civilization from the Spaniards. A number of small islands in the southwestern part of the main group are occupied by Mohammedans, called *Moros*. Among the mountainous parts of the other islands, real savages live in the dense forests of the interior. Some of these savages, called *Negritos*, or *little negroes*, are a race of very small, black people.

The United States has the difficult task of governing and teaching these people until they become able to govern themselves. While different languages are spoken by the natives, Spanish is the most common one, as in Cuba and Porto Rico. The use of the English language, however, is rapidly increasing.

The Philippine Islands are the tops of a mountain range rising out of the sea. Much of the surface is therefore mountainous, some of the peaks being volcanoes. There are, however, many fertile valleys and narrow plains. The climate is everywhere tropical, and in most parts there is a heavy rainfall.

Surface and climate

In many parts it is so damp that cellars under the houses would be too damp to be healthful.

FIG. 201. — A house in the Philippines, built of bamboo and covered with thatch. The house is raised above the ground because of the dampness.

For this reason, the native house is usually raised above the ground, and the family lives in the second story (Fig. 201). The lower part is often used for storage, as a cellar is in our country.

Forests cover a large part of the archipelago, in many places forming tropical jungles. Among the valuable woods are ebony, the rubber tree, and a palm from whose sap alcohol may be made. Cinnamon, cloves, and pepper grow in these islands, and cocoanut and banana trees are also very common.

Vegetation and animal life

FIG. 202.—Native women of the Philippine Islands making cigars in Manila.

As in other tropical forests, there are immense numbers of animals, especially insects, serpents, and beautiful birds. Among the serpents are the huge python and the deadly *cobra de capello.* There are also deer, apes, wild hogs, wild buffaloes, huge bats, and man-eating crocodiles.

Principal products

Among the more important products are hemp, cocoa, coffee, sugar, and tobacco, the latter being manufactured into cigars at MANILA (Fig. 202). *Hemp* is the best-known export of these islands. It is made from the fiber of the wild plantain, which resembles the banana tree. Hemp is used for a number of purposes, one being for making rope. These islands supply the world with hemp for making the better grade, called Manila rope.

Great rafts of cocoanuts are shipped down the rivers to the sea. From this nut an oil is made that is used in lamps, and sometimes in the manufacture of a substitute for lard. Much of the dried meat of the nut, called *copra,* is shipped to Europe for use in soap making.

The natives have domesticated a native wild animal, the water buffalo (Fig. 203), which is of great value as a draft animal. It is of special service in the rice fields, which are kept flooded during the growing season. The buffalo is quite at home in the mud, even preferring wet walking to dry; and, in fact, it must have a daily plunge in the mud and water.

Cities

In this large group of islands, there are many cities having each a population of more than ten thousand; but there is only one of special importance. This is MANILA, on the island of Luzon. This city, which has more than two hundred thousand inhabitants, is situated upon an excellent harbor, and is the capital of the Philippines.

Review Questions and Suggestions

ALASKA: *Questions.* 1. How was Alaska obtained, and how was the purchase at first regarded? 2. What can you say about agriculture and lumbering? 3. State some

FIG. 203. — Native Filipinos plowing with the buffalo.

DOMINION OF
CANADA
AND NEWFOUNDLAND
Scale of Miles
0 100 200 300 400 500 600 700
Montreal
Winnipeg
Hamilton
Nanaimo
VICTORIA
Capitals with less than 25,000
Comparative Area
PENNSYLVANIA
45,215 Square Miles
Williams Engraving Co., N.Y.
Longitude West from Greenwich
120° 110° 100° 90° 80° 70° 60°
GREENLAND
ALASKA
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
NEW BRUNSWICK
NOVA SCOTIA
NEWFOUNDLAND
HUDSON BAY
Vancouver
Victoria
Portland
Tacoma
Seattle
Spokane
Calgary
Edmonton
Medicine Hat
Regina
Winnipeg
Duluth
Minneapolis
St. Paul
Milwaukee
Chicago
Detroit
Buffalo
Toronto
Ottawa
Montreal
Quebec
Halifax
Portland
Boston
New York
Philadelphia
Toronto
London
Hamilton
Guelph
Brantford
Windsor
Port Arthur
Fort William
Sault Ste. Marie
Cobalt
Kat. Portage
Brandon
Moose Factory
Fort Churchill
York Factory
Fort Chipewyan
Fort Simpson
Fort Wrangel
Sitka
Muir Glacier
Mt. Hooker 10,000
Mt. St. Elias 18,024
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
Lake Winnipeg
Lake Manitoba
Great Slave Lake
Great Bear Lake
Athabasca
Peace R.
Saskatchewan
Nelson R.
Churchill R.
Ekwan R.
East Main R.
Big R.
Great Whale R.
Richmond Gulf
C. Henrietta Maria
C. Eskimo
C. Dufferin
Hudson Strait
Davis Strait
Baffin Bay
Lancaster Sound
Parry Channel
Fox Channel
Foxe Basin
Hudson Bay
Gulf of St. Lawrence
Gulf of Mexico
Pacific Ocean
Atlantic Ocean
Juliancha
Upernivik
C. York
C. Dan
C. Bald
C. Sable
C. Cod
Sydney
Cape Breton I.
Strait of Canada
Anticosti I.
Hamilton Inlet
Hopedale Mission
Nain
Ungava Bay
Mackenzie R.
Yukon R.
Saskatchewan R.
Nelson R.
Hudson Strait
Davis Strait
Baffin Bay
Lancaster Sound
Parry Channel
Fox Channel
Foxe Basin
Hudson Bay
Gulf of St. Lawrence
Gulf of Mexico
Pacific Ocean
Atlantic Ocean

FIG. 204.

facts about sealing. 4. What other kinds of fish are caught? 5. State the principal facts about mining. 6. Describe the scenery. 7. Name and locate the leading towns.

Suggestions. 8. Learn more about the fur seal. 9. How does the area of Alaska compare with that of the United States proper? 10. Measure the length of the Yukon, and compare it with the Mackenzie. 11. Draw an outline map of Alaska.

Porto Rico and Cuba: *Questions.* 12. How do these islands happen to be under our guidance? 13. What are their areas and principal surface features? 14. Describe the climate. 15. Name the farm products. 16. How are these products of special value to the United States? 17. What other raw products are found? 18. Name and locate the principal cities.

Suggestions. 19. Estimate the length and average breadth of Cuba. 20. What products of Cuba and Porto Rico are also raised in the United States? Where? 21. Make a sketch map of Cuba and Porto Rico.

Panama Canal Zone: *Questions.* 22. Locate this zone. 23. What can you tell about it? 24. What advantages will be secured by the canal?

Suggestions. 25. What difficulties are caused by the climate in the work of digging the canal? 26. Read magazine articles telling about the work.

The Hawaiian Islands and Other Small Islands: *Questions.* 27. Where are the Hawaiian Islands located? 28. How did they come into our possession? 29. What can you tell about the volcanoes? 30. Why are these islands of special value to us? 31. What are the chief products? 32. Name and locate the two chief cities. 33. Name and locate other island possessions. 34. How are they important?

Suggestions. 35. Why should you expect much the same products in the Hawaiian Islands as in Cuba? 36. Explain the presence of many Chinese and Japanese in these islands.

The Philippine Islands: *Questions.* 37. How were these islands obtained? 38. What about their area and population? 39. State some facts about the people. 40. Describe the surface and climate. 41. What about vegetation and animal life? 42. What are the principal products? 43. What about the cities?

Suggestions. 44. Compare the latitude of the islands with that of the West Indies and of the Hawaiian Islands. 45. Name several other places thus far studied that have volcanoes. 46. Collect pictures of scenes in the Philippines. 47. Find out about Dewey's capture of Manila. 48. Make a sketch map of the islands.

General Review Questions

1. Name the principal dependencies of the United States. 2. Locate each on the map of the world (Fig. 355). 3. Walk toward each. 4. Name the principal products of each. 5. In what zones does each lie? 6. How did we obtain each? 7. Name and locate the principal cities in our dependencies. 8. Which of our dependencies seem to you most valuable? Why?

IV. COUNTRIES NORTH OF THE UNITED STATES

1. Canada and Newfoundland

Map study

1. What parts of the boundary line between the United States and Canada are natural (Fig. 2)? 2. In what zones does Canada lie? What can you say about its climate? 3. What can you tell from the map about its rivers and lakes? About its mountains? 4. Into what large river do the Great Lakes empty? 5. What Falls are in the river between Lake Erie and Lake Ontario (Fig. 13)? 6. How must these Falls hinder shipping? 7. Which one of the Great Lakes lies wholly within the United States? 8. Which of our states border on Canada? 9. How near are Detroit and Buffalo to Canada? 10. Locate the Gulf of St. Lawrence; Hudson Bay; Greenland; Labrador; Newfoundland; Nova Scotia.

Canada is larger than the United States, even including Alaska; yet its

population is only about six millions, or about the same as that of our single state of Pennsylvania.

Area, population, and government

Canada includes nine provinces that correspond, in a way, to our states. These are Nova Scotia, New Brunswick, Prince Edward Island, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. Locate each of these. There are, besides, three territories. What are their names? Together they form a Union, called the *Dominion of Canada*, which is much like our own Union. The capital is OTTAWA, corresponding to our capital, Washington. Although Canada is a *colony* of Great Britain, the people make their own laws, and are quite as independent as we are.

NEWFOUNDLAND has refused to join the Dominion, so that, while still a colony of Great Britain, it is not a part of Canada. Newfoundland includes not only the island by that name, but also the east coast of Labrador.

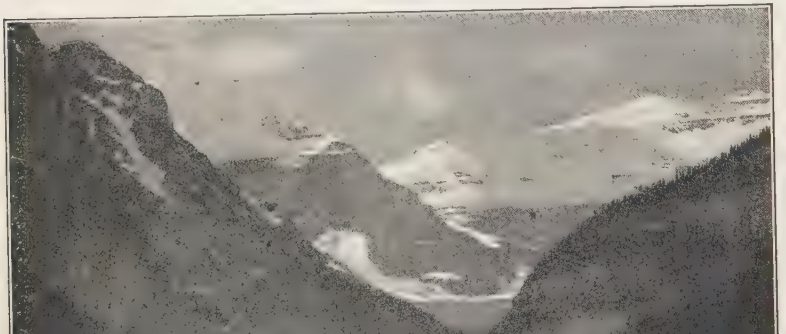


FIG. 205. — Lake Louise, nestled among the snow-capped mountains of western Canada, along the line of the Canadian Pacific Railway.

A large part of Canada is reall waste land. The northern portion, in cluding many islands in the Arctic zone, has hardly any inhabitants except a few Eskimos. Farther south there is broad belt of forest (Fig. 211). This als has few inhabitants, and these are mainl hunters and Indians. The climate her is severe, and much of the soil is to rocky and sterile for agriculture.

Why settled chiefly in the southern part

The surface of southern Canada ver closely resembles tha of our Northern States. Eastern Canada, for instanc is much like Ne England. The se tion that lies nor of Ohio and New Yo is more nearly lev like those states; a it is the most imp tant farming regi in the Dominic Farther west, north Dakota and Monta are broad plains (F 206), increasing in elevation to the v base of the Rocky Mountains.

Surface features of southern Canada

Among the Western mountains are m canyons, glaciers, and snow-capped peaks (205). The scenery of this region is won ful, and the Canadian Pacific Railway pa through the best of it. A portion of this derland has been set aside as a national by the Canadian government.

The climate of southern Canada, the surface features, correspond that of our Northern States, thoug is slightly cooler. The climate of

Scotia, New Brunswick, and southern Quebec, for example, resembles that of New England, while Ontario has a climate similar to that of New York, Ohio, and Michigan. Farther west, in Manitoba, we find nearly the same climate as in Minnesota and North Dakota; and west of this, in Saskatchewan and Alberta, come the arid lands. In British Columbia, on the west coast, there is heavy rainfall and an even temperature, as in Washington.

Climate of Southern Canada

The Labrador current, which so cools the temperature of New England (p. 15), sweeps from the Arctic Ocean past Labrador and greatly chills the coast of that region, as well as Newfoundland and Nova Scotia. There is no such ice-laden current in the Pacific, and for that reason the climate is far warmer there. Notice, for instance, how much farther north Vancouver and Juneau are than any city in eastern Canada.

The facts that were given about farming and grazing in our Northern States are almost equally true of the country that lies north of them in Canada. For example, the warm, damp ocean winds favor the production of wheat and the hardy fruits in British Columbia as well as in Washington (p. 106).

Agriculture
1. Wheat and hardy fruits in the West

Farther east, on the plains at the base of the Rocky Mountains, the climate is too arid for farming. Here, therefore, ranching is the principal industry, as in Montana and western Dakota (pp. 82 and 114). Immense herds of sheep and cattle are reared on these plains. There are several towns here, the largest of which is CALGARY.

2. Ranching in the arid lands

FIG. 206. — Fields of wheat, some cut, some uncut, on the level, fertile plains of southern Manitoba.

In central Saskatchewan the climate begins to be more favorable for agriculture, and there, as well as in Manitoba, enormous quantities of wheat are raised. This wheat belt is a continuation of that found in Minnesota and eastern Dakota. Although the winters are long and cold, the summers are warm, so that the hardy grains, especially wheat (Fig. 206), oats, and barley, thrive

3. The greatest grain region, and its leading city

In the midst of this wheat region is WINNIPEG, situated on the banks of the Red River of the North, which empties into Lake Winnipeg. Find out, from the map (Fig. 204), what other large river is tributary to this lake; also the name of the outlet of the lake.

The country north of Lake Superior is hilly and for the most part forest-covered, being quite like northern Minnesota and Michigan. There is, therefore, little agriculture here.

Farther east, on the peninsula between Lakes Erie and Ontario on the east, and Lakes St. Clair and Huron on the west, is some of the best farm land in Canada. This region is in the province of Ontario, which is the most densely settled of the Canadian provinces, containing nearly half of all the people in Canada. What large cities do you find here? More than two thirds of the inhabitants of Ontario, however, dwell either on farms or in small towns in the farming districts.

4. The most populous farming section, and its products

This section is no farther north than central and western New York, and its climate is greatly influenced by the Great Lakes. Here grapes, peaches, corn, and even tobacco are raised; also quantities of oats, wheat, barley, and flax. Some of the finest horses in America are reared in Ontario, and the province is further noted as a dairy region.

There is a strip of excellent farming country along the St. Lawrence River and the southern shores of the Gulf of St. Lawrence. Show these sections (Fig. 204). Prince Edward Island has many fine farms, and portions of Nova Scotia and New Brunswick also are farming districts. One of the best and most beautiful farming regions in all Canada, noted especially for delicious apples, is in southwestern Nova Scotia. Here the French settlements were made, about which Longfellow has written in his "Evangeline"; and this region is often called "The Land of Evangeline."

5. Farming in southeastern Canada

FIG. 207. — Farmers at work in the fertile wheat fields of western Canada, near Winnipeg.

Western Canada, like western United States, is a noted mining region. Among the minerals, gold and silver are especially important, though lead and copper ores, building stone, coal, and other mineral products are also obtained. Valuable deposits of coal are found both among the mountains and

Mining

1. In British Columbia and Yukon Territory

n the plains farther east. You have already learned that the famous Klondike egion is situated in Yukon Territory, ıear the Alaskan boundary. Although o near the Arctic Circle, DAWSON CITY, n the Klondike, has grown rapidly ecause of the gold mining.

. In Ontario nd southeastrn Canada

Gold and silver are found in he province of Ontario, in the vicinity of the Lake of the Woods. One of the most remarkble silver deposits on the contiient has recently been discovered t Cobalt, north of Lake Ontario. Nickel is also mined in Ontario, nd some oil fields have been leveloped.

Although iron ore has been liscovered in certain places, the carcity of coal, near at hand, has revented Canada from producng much iron. The coal of vestern Canada is too distant for ıse in the Eastern cities, and the oal beds of the East have never een thoroughly developed.

In Nova Scotia, and on Cape Breton Island, which is a part of Nova Scotia, there are extensive eds of soft coal, like that of vestern Pennsylvania and the Central States. This coal is shipped to the cities f the St. Lawrence Valley. An imortant iron-manufacturing industry has leveloped at SYDNEY, Cape Breton sland. This has increased the value f the Nova Scotia coal.

umbering .. Extent of he forests

The forests that cover northern New England extend into the hilly and mountainous section of New Brunswick and outhern Quebec (Fig. 211). In fact, from there westward to the Pacific this wooded tract, sweeping northward around the vast plains of Manitoba, is from two to three hundred miles wide. This forest, which is one of the largest in the world, includes fully a million square miles, or more than a fourth of the entire area of Canada.

FIG. 208. — One of the large trees in the forest of western Canada. The boy sitting on the trunk gives a scale by which you can judge the size of the tree.

In the east, the principal trees are spruce, balsam fir, pine, and maple; in the west they are spruce, mammoth cedar, sometimes sixty feet in circumference, and Douglas fir, which in some cases grow to a height of two hundred feet (Fig. 208). Most of this vast forest is a wilderness, about which very little is known. Wild animals (Fig. 209) still live here in great numbers, and there are few parts of the continent where the hunting for large game is so

FIG. 209. — Some of the animals of northeastern United States and southeastern Canada.

good. Among the animals are the deer, moose, bear, fox, wolf, wild cat, beaver, and mink. Furs are one of the principal products of the region. From very early days the Hudson Bay Company has had trading stations in this wilderness for the purpose of obtaining the furs from Indians and other hunters and trappers.

2. Method of lumbering, and lumber centers

Lumbering is carried on in much the same manner as in the northern part of the United States (pp. 18 and 120). In the east the principal river down which the logs are floated to the sea is the St. John. Upon this river are FREDERICTON, the capital of New Brunswick, and ST. JOHN, the largest city in that province. In these two cities the logs are made

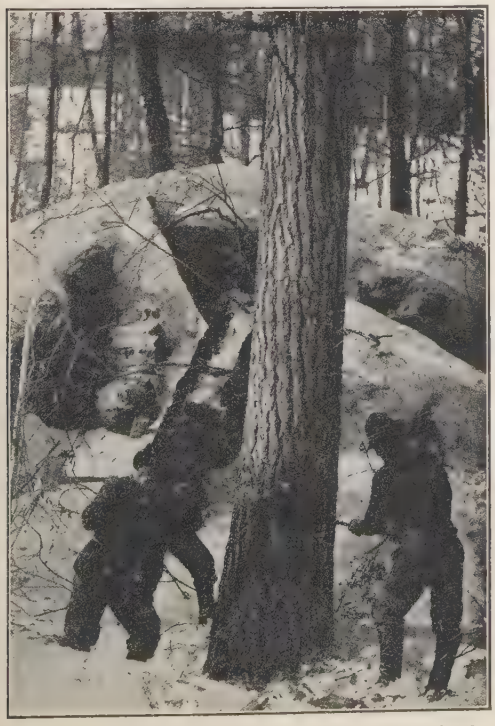


FIG. 211. — Lumbermen chopping down a tree in the forest of eastern Canada. Note how much smaller this tree is than that in Fig. 340.

into either wood pulp or lumber. Immense quantities of both these products are shipped from the seaport of ST. JOHN.

The woods of Canada are at present one of its greatest sources of wealth; indeed, there are hundreds of sawmills

FIG. 210. — A moose in the woods of Canada.

at the rapids on the streams, and even in the large cities. Among the latter, OTTAWA, TORONTO, and MONTREAL are important, especially in the manufacture of lumber into such articles as doors, sash, blinds, barrels, and furniture.

Fishing

1. Catching of food fish

It was the excellent fishing on the shallow banks off the eastern coast of Canada that early attracted the French to America, and fishing is still a flourishing industry along that coast. The French still own two small islands there, St. Pierre and Miquelon, to which their fishing vessels go.

Fully fifty thousand people in Newfoundland and the eastern provinces, especially Nova Scotia and Prince Edward Island, are engaged in cod fishing. One of the best-known fishing ports is YARMOUTH, in Nova Scotia, although a

great deal of fishing is carried on from HALIFAX, and smaller places in Nova Scotia. ST. JOHN'S, Newfoundland, is another important fishing port.

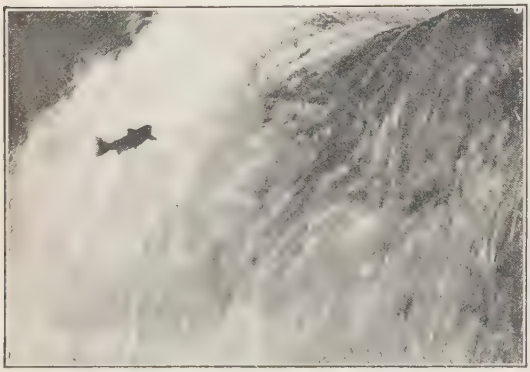


FIG. 212. — Photograph of a salmon leaping up over a waterfall in a stream on the coast of Labrador. This fall is over ten feet high and yet the salmon are able to leap up over it.

There is also much inland fishing, for the streams and lakes still abound in trout, pickerel, whitefish, bass, and salmon (Fig. 212). Every year large numbers of men go from Canada and the United States to enjoy the sport of fishing in the Canadian lakes and streams. In addition there is much fishing on the west coast, especially for salmon.

It is interesting to watch the salmon as they run up the streams to spawn. At times, in order to get beyond waterfalls, they must leap several feet into the air (Fig. 212). Often they fail, but, returning to the task, they try again and again until successful. When the young have reached the proper size, they go downstream to the ocean, where they live until they are ready to spawn. It is believed that they always go back to the river in which they were born.

While traveling up the streams, the salmon are easily caught in nets set across the current, or by dip nets in the hands of fishermen, or sometimes by salmon wheels. Immense numbers of salmon are canned in western Canada (Fig. 213), as in Washington and Alaska.

2. Sealing

We have already learned (p. 139) about the seal fishing in Alaska. Seals are also found on the eastern shores of Canada, but their fur is of little value. There is, however, a layer of fat, or blubber, just beneath the skin, as in the whale. This can be made into oil, and it is mainly for the blubber that these Eastern seals are caught, though the skins are used also for making leather. Vessels go out from ST. JOHN'S, Newfoundland, every spring to hunt the seals in the ice that floats down in the Labrador current (Fig. 214). Vessels go from this port also to catch the huge whales that live in the Arctic waters.

Transportation

There appear to be two outlets by water for central Canada, — one by way of the St. Lawrence, the other by way of Hudson Bay. The latter is of little use, however. Perhaps you can explain why.

Canada shares with the United States the advantages of navigation on all the Great Lakes, with one exception. Which is it? Fortunately for Canada, the lower St. Lawrence lies wholly within that country. But this river has some serious drawbacks. One is the ice that stops navigation in winter. A second is the

FIG. 213. — Salmon in a salmon cannery, just brought from the water.

presence of numerous rapids over which vessels cannot pass in going upstream (Fig. 216). In addition, dense fogs are common in the Gulf of St. Lawrence and along the Newfoundland coast, where the air from the ocean is chilled in passing over the cold Labrador current. Ship canals have been built around the rapids and falls (Fig. 215), so that good-sized boats are able to go from the open ocean to the western part of Lake Superior, a distance of twenty-two hundred miles. This gives the Canadian route a great advantage over the Erie Canal route, upon which only small canal boats can go. The new barge canal, now under construction, is expected greatly to increase the value of the Erie Canal route.

Fig. 214. — Seal hunters killing seal on the floe ice in the Labrador current north of Newfoundland.

There are several other large rivers in Canada besides the St. Lawrence River. Name some of them, and tell why most of them are of little value.

Railways are of great importance in Canada, as in the United States. The leading railway is the Canadian Pacific, which extends from St. John, New Brunswick, entirely across Canada, to Vancouver, on the Pacific coast. It

Fig. 215. — The Welland Canal, between Lakes Erie and Ontario. At this point there are two locks in the canal.

is the shortest route from England to China and Japan, and much freight is sent that way. Another important line is the Grand Trunk Railway.

Leading cities

1. Along the St. Lawrence and Ottawa Rivers

MONTREAL (Fig. 217), the principal city in Canada, is on the St. Lawrence River (Fig. 218), at the mouth of the Ottawa River, and just below the Lachine Rapids (Fig. 216). Thus goods from Europe may be carried by ocean vessel to Montreal, fully a thousand miles inland; thence, by other ships, they may be taken on canals, rivers, and lakes as far as Duluth. By this means, and by railways also, raw products from the North, the East, the South, and the West are brought to Montreal, either to be manufactured, or to be shipped farther. Because of its extensive connections with the interior of Canada, by water and by rail, Montreal has advantages similar to those of New York; but since it has a less fertile territory to draw upon, it has grown far less rapidly than New York City.

As in the large cities of the United States, there are many kinds of manufacturing in Montreal, including the making of sugar, boots and shoes, cotton and woolen clothing, India-rubber goods, furniture and other articles of wood, various steel and iron products, and cigars.

Copyright, 1906, by Wm. Notman & Son, Montreal.

FIG. 216. — A steamer going down the Lachine Rapids just above Montreal. It must take the canal around these rapids in going upstream.

Farther down the river is QUEBEC, which was once the center of the French government in Canada, and the principal city. It is situated on a high bluff rising above the St. Lawrence, and is fortified so as to command that river. The

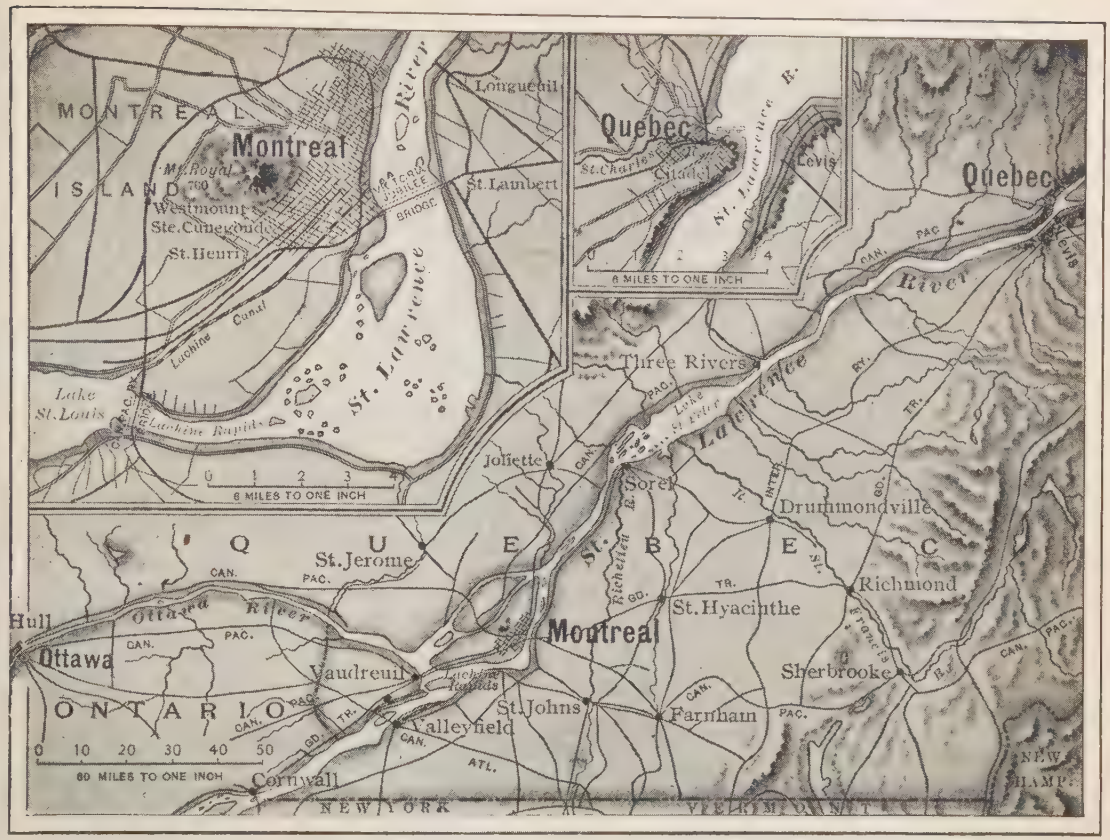


FIG. 217. — Map to show the location of Montreal, Ottawa, and Quebec.

FIG. 218. — A view of Montreal from the hill, called Mount Royal, which rises directly behind the city. In the distance is the broad St. Lawrence. Notice the long bridge crossing it.

better location of Montreal, farther inland, has drawn the commerce away from Quebec. The advantage of Montreal's situation has been greatly increased by the building of ship canals around the rapids of the St. Lawrence; also by the dredging of the river, deepening the channel so as to allow ocean vessels to reach the city.

Quebec is one of the quaintest and most interesting cities on the continent. It resembles a bit of the Old World, transplanted to America, and a visitor from the United States feels that he is indeed in a foreign country. There is some manufacturing there, such as the making of boots and shoes.

2. Along the Atlantic coast

What Canadian cities on the Atlantic coast have already been mentioned, and in what connections? One of these, HALIFAX, in Nova Scotia, is one of the oldest cities in Canada. Although it has an excellent harbor, Halifax has never become a great city. The reason is easily seen on examining the map (Fig. 204). The narrow peninsula of Nova Scotia is not large enough to supply raw materials and manufactured articles in sufficient quantity to make it a great shipping point, and the country farther west is too difficult to reach. It is much cheaper to send Western goods to Montreal for shipment eastward, than to carry them by rail as far as Halifax.

FIG. 219.—The Parliament Buildings at Ottawa.

OTTAWA (Fig. 217), the capital of the Dominion, is above Montreal, at a large fall in the Ottawa River. Because of the fine water power, the city has much manufacturing; it is especially noted for lumber manufactories. It has beautiful government buildings, known as the *Parliament Buildings* (Fig. 219).

3. Along the Great Lakes

TORONTO, the second city in size in Canada, is located on an excellent harbor on the shores of Lake Ontario. Being in the midst of a fertile farming country, and having water connection with coal on the east and south, and with lumber and other raw products on the west, Toronto has become a great manufacturing center. At the same time it is one of the most attractive cities on the continent.

Not far from Toronto, on the extreme western end of Lake Ontario, is HAMILTON, a manufacturing and trade center; there are also other cities on the same peninsula, the largest being LONDON. At the eastern end of Lake Ontario, near the Thousand Islands, is KINGSTON, which has cotton and woolen mills, car shops, and locomotive works, besides being a lake port and a railway center. WINDSOR (Fig. 204), opposite Detroit, shares some of the advantages of that city, being a shipping point and a manufacturing center. PORT ARTHUR, whose location corresponds to that of Duluth in the United States, is a shipping point for grain, cattle, and other Western products.

4. Other cities

What have you already learned about WINNIPEG? VANCOUVER, on the Pacific coast, has already been mentioned. In what connection? Across the strait on the Island of Vancouver is the city of VICTORIA. How do these two cities compare in size with the largest two on Puget Sound? (See Appendix.)

2. GREENLAND (Fig. 204)

The Eskimos (Fig. 220) living on the west coast of Greenland are under the control of the Danes, who trade with them for skins, walrus ivory, blubber, and eider down. The most northern of the Danish trading stations is UPERNIVIK, which is the most northern point in the world where white men live. Some uncivilized Eskimos, however, have homes still farther north.

FIG. 220. — A Greenland Eskimo in his skin-boat, or kayak. In the distance are icebergs which have broken off from the great Greenland glacier.

Most of Greenland is a barren waste of ice and snow — one of the most complete desert lands in the world. There is no living thing to be found in the ice-covered interior.

Review Questions

1. Give some facts about the area of Canada. The population. The government. 2. How many provinces are there in Canada, and what are their names? 3. What can you tell about Newfoundland? 4. Why is Canada settled chiefly in the southern part? 5. Show how fully the surface features of southern Canada correspond to those of our Northern States. 6. Describe the climate. 7. What are the farm products in the West? 8. State the principal facts about ranching. 9. Where is the principal grain region, and what is the leading city there? 10. Where is the most populous farming section, and what are its products? 11. What about farming in southeastern Canada? 12. What can you tell about mining in British Columbia and Yukon Territory? 13. What mineral products are found in Ontario and southeastern Canada? 14. Where are the forests? 15. What is the method of lumbering, and what are the leading lumber centers? 16. Where are food fish caught? What kinds are caught? 17. What about the sealing? 18. What are the conveniences for transportation? 19. Locate and tell the principal facts about the leading cities along the St. Lawrence and Ottawa rivers. 20. Along the Atlantic coast. 21. Along the Great Lakes. 22. Locate and tell about other cities of importance. 23. What facts can you state about Greenland?

Suggestions

1. Compare the area of Canada with that of the United States (see Appendix). 2. Compare the populations (see Appendix). 3. Read the story of "Evangeline." 4. Lake Erie is how much higher than Lake Ontario? How are ships able to pass from one lake to the other? 5. Why should Buffalo grow more rapidly than Toronto? 6. Of what advantage is it to the United Kingdom to have such a large, productive colony as Canada? 7. What books on Arctic travel have you read? Tell some of the

FIG. 221. — Some of the birds and four-footed animals of the Far North.

MEXICO
AND
CENTRAL AMERICA
Scale of Miles
0 100 200 300 400 500
Cities with over 200,000 Mexico
Cities with 100,000 to 200,000 Guadalajara
Cities with 50,000 to 100,000 Leon
Smaller Places Miraflores
Capitals
Other Cities
Comparative Area
PENN.
45,215 Square Miles
UNITED STATES
MEXICO
GULF OF MEXICO
CARIBBEAN SEA
PACIFIC OCEAN
CUBA
BAHAMA ISLANDS (Br.)
JAMAICA (Br.)
BRITISH HONDURAS (BELIZE)
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
PANAMA
CENTRAL AMERICA
SALVADOR
SIERRA MADRE
LOWER CALIFORNIA
GULF OF CALIFORNIA
ISTHMUS OF TEHUANTEPEC
GULF OF TEHUANTEPEC
BAY OF CAMPECHE
CAMPECHE BANK
YUCATAN PENINSULA
TROPIC OF CANCER
Florida Strait
Havana
New Orleans
Mexico
Guadalajara
Puebla
Guatemala
Panama
PANAMA CANAL AND UNITED STATES ZONE
Scale of Miles
Longitude West from Greenwich

FIG. 222.

things you have learned from them. 8. Read Nansen's "First Crossing of Greenland" or Peary's "Northward over the Great Ice." 9. Recall facts that you have already learned about the Eskimo: how they live, what they eat, etc.

V. COUNTRIES SOUTH OF THE UNITED STATES

Map study

Mexico. 1. Describe the relief of Mexico. 2. In what zones does it lie? 3. Name the two large peninsulas. 4. What river forms a part of the northern boundary? 5. What salt waters border Mexico? 6. Find the capital. 7. Find the largest seaport. 8. Compare the coast line with that of the northeastern part of the United States.

Central America. 9. Name the countries. 10. What sea lies to the east? 11. What large lake do you find? 12. Examine the small map of the Panama Canal. Describe the route proposed. 13. Name the two cities at the two ends of the canal.

West Indies (Fig. 190). 14. Find the Bahamas; the Lesser Antilles; the Greater Antilles. 15. Name the four largest islands in the West Indies. 16. In what zone do the West Indies lie? 17. What waters bathe the shores of the West Indies? 18. What nation owns the Bahamas? 19. What other nations have possessions in the West Indies? 20. Locate the Bermuda Islands on the map, Figure 132.

1. Mexico (Fig. 222)

Area, population, and government

Mexico is about one fourth as large as the United States, and has nearly one sixth as many inhabitants.

After Columbus discovered the West Indies, the neighboring coast of the mainland was visited and settled. Thus the Spaniards came into possession of Mexico as well as some of the country to the north which now belongs to the United States.

The explorers found so much gold and silver in Mexico that many Spaniards settled there. They opened mines, and started coffee plantations, farms, and cattle ranches. Besides the descendants of these Spaniards there are many Indians and half-breeds in this country.

Mexico was for a long time a Spanish colony, but Spain governed the country so badly that the people finally rebelled, and in 1821, won their independence. Ever since that time Mexico has been a republic, with the capital at Mexico City, where the president lives.

Why much of the country has not a tropical climate

The Tropic of Cancer crosses Mexico north of its central part, showing that a large portion of the country is in the tropical zone. Yet Mexico has a much cooler climate than this fact suggests. The reason is that much of the country is very high land; and, as you have learned, the climate is cooler on such high land.

The Cordillera of western United States extend into Mexico, and there are broad plateaus, in many places more than a mile in height, crossed by mountain ranges which rise another mile, or more. Several of the loftiest peaks are volcanoes, made of lava (Fig. 223); and some of the peaks are so high that they are always covered with snow, in spite of the fact that they lie in the torrid zone. From these facts it is plain that the climate of Mexico is tropical only on the lowlands near the coast.

The wet and the dry parts

There is heavy rainfall along the eastern coast, and in the southern part. In the central and western parts, on the other

hand, the country is drier, and in places even a desert. This is an extension of the arid belt of western United States.

FIG. 223. — Colima, one of the Mexican volcanoes, in eruption. The column of steam and ashes is two or three miles high. The white patch on the side of the mountain is a lava flow.

In the greater part of Mexico forests are rare, except upon the higher mountains. In fact, there is so little forest on the arid plateau that the inhabitants find difficulty in obtaining wood for fuel. Some they dig from the ground; for some of the arid-land bushes, such as the mesquite, have long, thick roots which make excellent firewood.

Products from forest trees and other native plants

In southern Mexico and on the damp lowlands, on the other hand, there are dense tropical forests. In these are found many valuable woods, such as mahogany, rosewood, and logwood. The rubber tree also grows here, and large quantities of rubber are produced.

One of the most valuable of the native plants is the heniquen, a variety of hemp, which thrives in Yucatan. This and other fibers rank next in value to mineral products, among the exports of Mexico. Most of the fiber goes to the United States.

Another product is the vanilla bean, which grows upon a climbing plant. In the seed-pod are nestled the fragrant beans which are used for making flavoring extracts, for perfumeries, and for medicine. Pepper, made from the dried berry of a tropical plant, indigo, extracted from a berry, and sarsaparilla, from the roots of a tropical plant, are all Mexican products.

Agriculture

1. On the arid plains

(1) *Products by irrigation*

Although the climate of a large part of Mexico is arid, still agriculture is the principal industry. On the arid plains and plateaus there is much farming by irrigation. Here products of the temperate zone are raised, such as wheat, corn, potatoes, and beans. Much fruit also is produced, especially apples, pears, peaches, and grapes.

FIG. 224. — A view in the tropical lowlands of Mexico near the coast, called the "hot lands." The road is bordered by banana trees.

A species of native arid-land lant, called *agave*, or century lant, is of great value. From he juice of the agave the Mexans obtain an alcoholic drink nown as pulque, and another nown as mescal. The tough eaves of some varieties of agave ontain a fiber which is made nto paper and a strong thread; nd from the juices of one kind, alled the *maguey*, soap may e made. So valuable is the naguey that it is carefully cultiated upon plantations.

Fig. 225.— Interior of a Mexican adobe house.

(2) *Farming methods; and ome life*

The Mexican farming methods re generally very crude, being a mixture of ancient Aztec customs and those introduced from Spain several enturies ago. One may still see the wooden low which barely scrapes the ground; and lso the wooden-wheeled cart drawn by oxen.

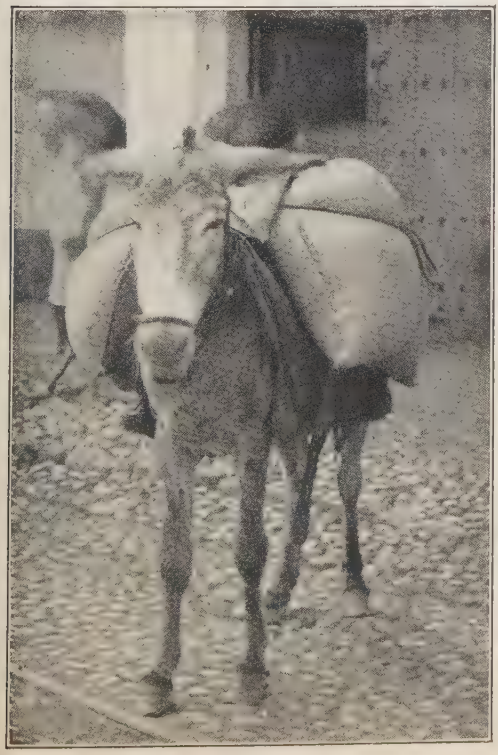


Fig. 226.— A Mexican burro carrying heavy sacks.

There are, however, many farmers who have adopted the same methods of farming that we have; and every year their number is increasing, for Mexico is now advancing rapidly.

The home life of the country people is interesting. Their houses have but one story, and are commonly built of sun-dried bricks, or *adobes* (Fig. 228), held together by layers of mud. Often there is but one room (Fig. 225), the ceiling being made of brush, and the floor of nothing but earth or stones. In this one room the whole family cook, eat, and sleep. Their food consists of very simple materials, such as unraised bread, baked in the fireplace, beans, and sometimes meat, commonly cooked with red pepper.

(3) *Ranching*

So much of Mexico is arid that large sections are suited only to grazing. For this reason, one of the leading industries is ranching. As in our Western States, there are extensive cattle and sheep ranches; and hides, meat, and wool are important exports.

Many horses and mules are raised; but the little Mexican ass, or *burro*, is one of the most common draft animals (Fig. 226). It is about as large as a small pony, and is made to do all kinds of work. The burro is a very patient beast, and is able to carry heavy loads and endure much hardship.

Hogs are fattened in large numbers, and there are many goats. The latter are much prized, not only for their meat and hides, but also for their milk, which is used as a food and for making cheese.

FIG. 227. — Coffee tree and berries growing in the shade of higher trees.

On the damp lowlands, the farm products are quite different from those on the arid plateau. There, rice, sugar cane, and cotton are raised; also tropical fruits, such as oranges, bananas (Fig. 224), cocoanuts, and pineapples. Upon the slopes between the tropical lowlands and the temperate plateau much cotton, tobacco, and coffee are grown.

2. On the lower, humid lands

Coffee, one of the most valuable products of Mexico, requires a rich soil, abundant moisture, a warm climate, and plenty of shade. In order to secure shade, the coffee bush, which reaches a height of from ten to fifteen feet, is planted in the shade of higher trees. A white blossom appears as early as March, and after the flower has fallen off, the coffee berry begins to grow (Fig. 227). It resembles a dark red cranberry. The coffee is inside of this berry in the form of two kernels, and the husk must be removed in order to prepare these kernels for market.

Mining

1. Extent of minerals

Mexico is a great mining country, producing more silver than any other country in the world. Much gold, copper, lead, and zinc are also mined, and recently great quantities of petroleum have been found on the coastal plain, as is the case also in Texas and Louisiana. A large amount of iron is known to exist in several parts of the country. At one place, near DURANGO, there is an iron mountain which contains an enormous amount of very rich ore. Here blast furnaces have been erected, and steel rails and other iron products are manufactured. Find this city on the map.

2. Difficulties in the development of mining

One great drawback to mining in Mexico is the lack of good coal. Another is the lack of easy tranportation. A third is the fact that much of the region cannot easily be explored for ore. In fact, some parts of the country are still occupied by tribes of savage Indians, who prevent miners from coming in. Still another difficulty is the old-fashioned methods of mining used by many of the Mexicans. The methods, however, are being improved, since many of the leading mines are now owned by Europeans, Americans, or educated Mexicans. Mining is now rapidly developing in Mexico, and more than half of

ıe exports of the country are minerals. Fibers re the second export in importance, and coffee the third.

Because of the ignorance of the work-ıg people, and the scarcity of coal, there is not a great deal of manufacturing in Mexico; nd that which is done is largely carried n by hand. Some of this hand work s very beautiful, for even the unedu-ated Mexicans are quite artistic.

[anufac-ıring

There are large tobacco factories in he tobacco district, and smelters in the nining regions. Some earthenware also s manufactured, and some cotton cloth. The manufacture of cotton is growing apidly in importance, and more money s now invested in cotton mills than in ny other form of manufacturing.

There are a few large cities, the greatest being the capital, MEXICO CITY (Fig. 228), built on the site of an ancie Aztec Indian city. It is situated on high plateau and therefore, although so far south, has a cool climate. In this city, as elsewhere in Mexico, there are many fine churches and other notable buildings. Another city in the interior of Mexico is PUEBLA, founded in 1531. It also is situated near one of the ancient cities, or pueblos, of the Aztecs. SAN LUIS POTOSI is a third important Mexican city. Locate each of these cities.

Leading cities 1. In the interior

FIG. 228.— A view of a part of Mexico City, with the snow-capped cone of the volcano, Popocatepetl, rising in the distance.

Since the eastern coast of Mexico is low and sandy, it has no good harbors. The largest two cities there are TAMPICO and VERA CRUZ, whose harbors are protected by breakwaters. There are some good harbors on the western coast, one of the best being that of ACAPULCO.

2. On the coast

2. Central America (Fig. 222)

Of the six Central American republics, the smallest is Salvador; the next Costa Rica. Nicaragua, Honduras, and Guatemala are about equal in size. These are all in North America; but the Republic of Panama is partly in North America and partly in South America. It has an especial interest for us. Why (p. 144)?

Names of the countries and their government

These six countries are independent of one another, and each has a form of government modeled after that of the United States. British Honduras (or Belize) is a colony of the United Kingdom.

Spanish is the language spoken in all these countries; but the great majority of the people are Indians, negroes, and half-breeds. The governments are not very good, and the people are often engaged either in civil wars or in fightin one another.

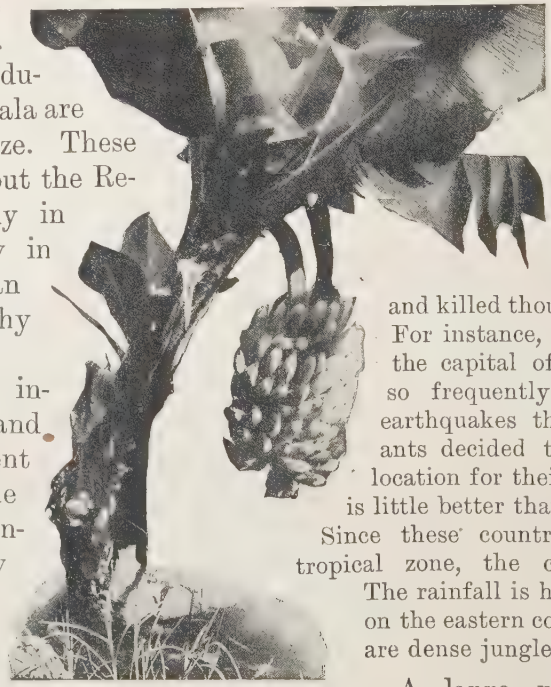


Fig. 229. — Bananas as they grow, hanging in great bunches from the broad-leafed banana tree.

Most of Central America is mountainou it has v

Charac the reg

eruptio earthq of grea lence. earth shocks leveled and killed thousands of For instance, San Sal the capital of Salvad so frequently destroy earthquakes that the i ants decided to choose location for their city; b is little better than the old Since these countries lie tropical zone, the climate i The rainfall is heavy, esp on the eastern coast, when are dense jungles.

A large part of countries is occupie dense tropical forests, from which are obtained mahogany, rose and other valuable cabin dye woods. The rubbe also grows here, and the p tion of rubber is an imp industry.

The pr

As in Mexico, coffee is on the hill slopes in the of the forest trees. Cost is one of the most imp coffee-producing districts 232). Bananas (Figs and 230), sugar, tobacco, and cocoa are other produ

Fig. 230. — Bunches of bananas piled by the side of the railroad, awaiting shipment.

The largest city in Central is New Guatemala, the capital of Guatemala.

The city

Fig. 231. — Some of the animals that live in the tropical part of North America.

FIG. 232. — Drying coffee berries in Costa Rica. There are tons of coffee berries here spread out in the sun to dry. After they are dried, the husk is removed and the bean is then shipped away.

This city, which was formerly situated at the base of two very active volcanoes, was removed to a safer site; hence the name *New Guatemala*.

3. THE WEST INDIES (see the Map, Fig. 190)

Location and names of the groups of islands

A chain of islands reaches from the Yucatan and Florida peninsulas to the mouth of the Orinoco River on the South American coast. These islands inclose the Caribbean Sea; and, also, with the aid of the peninsulas of Florida and Yucatan, the Gulf of Mexico. All of this archipelago, excepting the Bahamas, lies entirely within the tropical zone.

These islands, scores of which are very small, are called the West Indies, because Columbus thought he had reached India. With the exception of the Bahamas, they are also known as the *Antilles*. Those on the north, including the larger ones, are called the Greater Antilles; and those on the south, the Lesser Antilles.

The Greater Antilles

Two of the Greater Antilles have been already described (p. 141). What do you remember about them? All the other large islands are mountainous, with fertile valleys and small plains.

1. Jamaica

South of Cuba lies the island of Jamaica, the third in size in the West Indies, and a possession of Great Britain. KINGSTON is the capital and the largest city. The inhabitants are mainly negroes and mulattoes, there being fully forty blacks to one white person.

The chief occupation is agriculture, and the women are employed in outdoor work as much as the men (Fig. 233). One of the main products is sugar cane. Early vegetables and fruits, such as oranges and bananas are also raised. Jamaica ginger is obtained from the root of a plant that grows in this island.

2. Haiti

Haiti was the first large island discovered by Columbus, and on it he made settlements and opened mines. Like the other Greater Antilles, this became an important Spanish colony; but Spain lost one island after another, the two last to go being Cuba and Porto Rico. Haiti has long been independent, and there are now two republics in the island — Haiti and Santo Domingo. The capital of the former is PORT AU PRINCE; and of the latter, SANTO DOMINGO. Most of the inhabitants are negroes and half-breeds, descendants of the slaves of the Spanish settlers; but there are more white people in Santo Domingo than in

Haiti; and Santo Domingo is the more progressive.

Sugar, tobacco, coffee, and bananas are the chief products. There are valuable woods covering much of the island, and there is some mineral wealth; but little is done with these resources.

Most of the islands among the Lesser Antilles are possessions of Great Britain, nique and in St. Vincent there are active volcanoes. One of the most terrible volcanic eruptions ever recorded occurred in Martinique in 1902. After being quiet for about fifty years, Mont Pelée (Fig. 234) suddenly burst forth and completely destroyed the beautiful city of St. Pierre, which was situated at its base. In a few seconds all of the inhabitants, more than twenty-five thousand people, were killed by the cloud of steam and hot ashes which descended upon them.

FIG. 233. — Native women of Jamaica going to market, each with a burro, or small donkey, loaded with baskets of vegetables and fruits.

though some belong to other nations. For instance, Martinique and Guadeloupe belong to France; St. Thomas and St. Croix Denmark; and some islands to Ho The products of the Lesser Ant similar to those of the other W the most important being s

The Lesser Antilles

These small islands are vol of the volcanoes are now e

North of Haiti small islan bel

Fig. 234. — The ruined city of St. Pierre after the terrible volcanic eruption of 1902.

Early vegetables, pineapples, oranges, and cocoanuts are raised by the inhabitants, who are chiefly negroes. One of the industries, as on the neighboring coast of Florida, is caring for winter visitors. Why should people wish to go there in the winter?

4. The Bermuda Islands

Far out in the open ocean, east of North Carolina (Fig. 2), is a group of small coral islands, called the Bermuda Islands, which belong to Great Britain. They produce early vegetables, and flowers, such as Easter lilies, [illegible] hipped to New York.

[illegible] that these islands are [illegible] bers of people [illegible] the

6. What are the products from the forest tree and other native plants? 7. What agricultur products are obtained by irrigation? 8. D scribe the farming methods and the home life i the arid lands. 9. Where is ranching carrie on? What animals are raised? 10. Wh products are obtained from the lower humi lands? 11. What about the extent of minera in Mexico? 12. Mention several difficulti in the development of mining there. 13. Wh is the condition of manufacturing? 14. Nam and locate the leading cities in the interio 15. On the coast.

Suggestions. 16. Find out why coffee rai ing requires special care. 17. Find an artic of furniture made of mahogany. 18. Wa toward Mexico City. 19. What reasons ca you give for its location? 20. Who is tl president of Mexico? 21. Why are there r [illegible] e rivers in Mexico? 22. Make a sket [illegible] Mexico.

[illegible] L America: *Questions.* 23. Nam [illegible] s here, and tell their form of gover [illegible] hat can you tell about the people [illegible] region. 26. What are tl [illegible] ame and locate the leadi

Suggestions. 28. Why will harbors at each l of the Panama Canal be necessary? Make a sketch map of Central America. Name the capitals of each of the countries.

THE WEST INDIES AND THE BERMUDAS: *estions.* 31. Locate the West Indies, and e the names of their principal groups. Tell what you can about the government, ple, and products of Jamaica. 33. What can you tell about Haiti? 34. State important facts about the Lesser Antilles. 35. About the Bahamas. 36. How are the Bermudas important? Locate them.

Suggestions. 37. How does each of the largest four of the West Indies compare in area and population with New York State? With your own state? (See tables in Appendix.) 38. Find out more about the eruption of Mont Pelée.

VI. REVIEW OF NORTH AMERICA

1. THE UNITED STATES

ulation

There are now over ninety-two million rsons living in the United States, while in Canada, Mexico, and Central America there are ly about twenty-five million. It is plain, erefore, that about ur fifths of all the habitants of North nerica are found in r own country.

tribution population

The forty-eight tes in our Union have been settled by ople who came from e East. First, the tlantic coast was ttled by immigrants om England and her countries of urope. Then there as a movement of oneers westward across the Appalaian Mountains and the Mississippi alley. Finally, settlers pushed across e Western mountains, until the Pacific ast was reached.

While all parts of the country have now en settled, by far the greater part of the population is still found in the Eastern half. In Figure 235, in southeastern Indiana, you will find a star, which shows the center of our population. There are just about as many persons in the United States living east of this star as west of it, and as many north of it as south. That is what is meant by the center of population. How far do you live from this point?

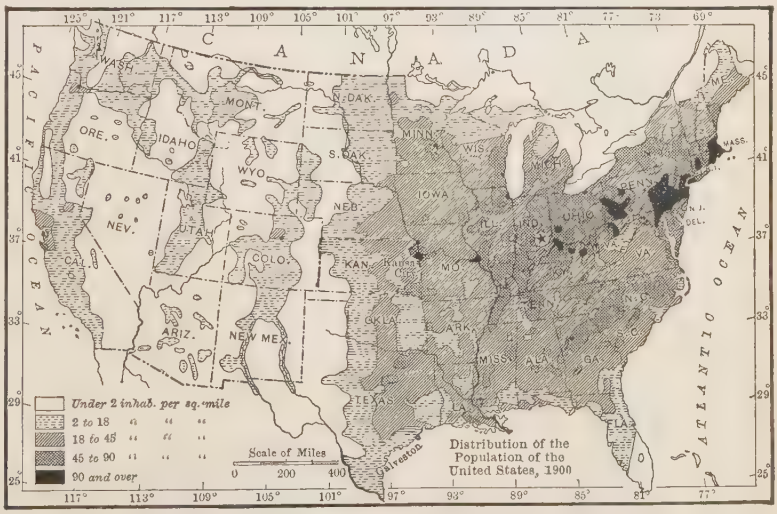


FIG. 235. — Distribution of population in the United States (1910).

From the map (Fig. 235) you can tell what parts of the country are most densely settled. Where are they? What parts are least densely settled?

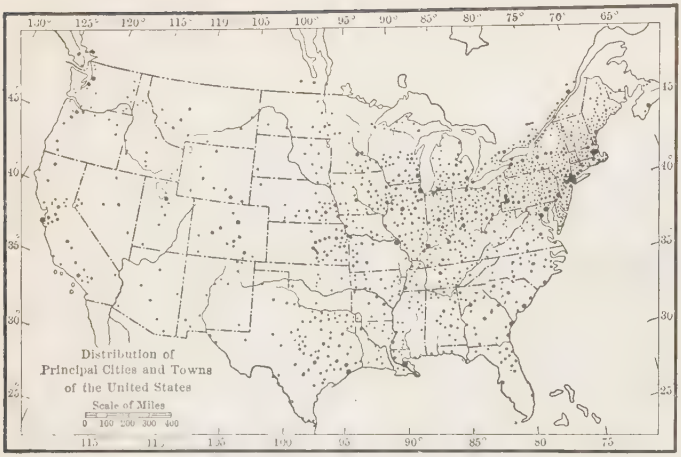


FIG. 236. — Map showing distribution of cities.

Conditions in the United States are very favorable to agriculture. In no part, except on the highest mountains, is it too cold to raise valuable crops; and in most parts the soil is fertile. Name some states that have very fertile soil (pp. 51, 74). Name a section where the soil is not so good (p. 16). Why is hilly and mountainous country not well suited to farming (p. 16)?

1. Climate and soil

Note how closely Figure 236, showing the distribution of cities, corresponds to Figure 367. Which states seem to have the most cities? Name in the order of their size (Fig. 237) the six states having the largest population.

About two thirds of our ninety-two million inhabitants live either in the country, or in towns with a population of less than eight thousand. In Mexico and Canada the proportion living in the country is still greater. In other words, the great majority of persons in North America are country people.

Of the great occupations in the United States, that of agriculture is most important. More than one third of all our workers are engaged in that industry.

Agriculture

Although farming is by far our greatest industry, it is surprising what a small part of all our land is now really under cultivation.

2. Proportion of land that is cultivated

Figure 238 makes this clear by the use of a circle. The circle represents all the land in the United States, and the portion marked *improved* shows the part that is now used to produce crops. The part of the circle marked *unimproved* shows the proportion that has not yet been plowed, or otherwise improved, so as to raise crops. Some of it is swamp land, some is covered with forest or underbrush, some is used for grazing. From this figure it is plain that less than *one fourth* of all the land in our country is now culti-

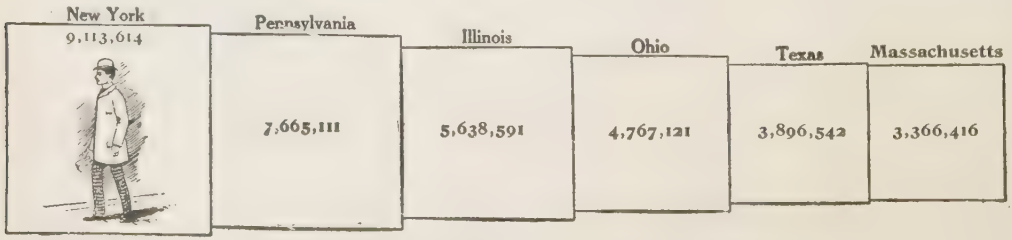


FIG. 237. — The six states with largest population (1910).

vated; and more than *one half* is not even in farms.

3. Why so little land is under cultivation

One reason why there is so little cultivated land is that, as yet, only the best has been farmed. When there is more need of farms, some of the poorer land will be made to yield crops. There are two great difficulties, however. A large part of the portion of the circle marked *not in farms* represents the arid lands of the Western States. Locate these (Fig. 276). Which states receive an abundance of rain? Which states suffer for want of it? What is the reason for this (p. 105)?

People will not be eager to receive farms there, even as a gift from the government, until they are able to irrigate them. What is the government now doing to make some of this land more attractive to settlers (p. 113)?

A second reason why much land remains uncultivated is that there is a great deal of mountainous country. What are the names of our principal mountain systems? Through what states do the Appalachian Mountains extend? The Cordillera? What mountains, besides the Rockies, are included in the Cordillera? Probably most of the mountainous and arid lands never can be cultivated. Why?

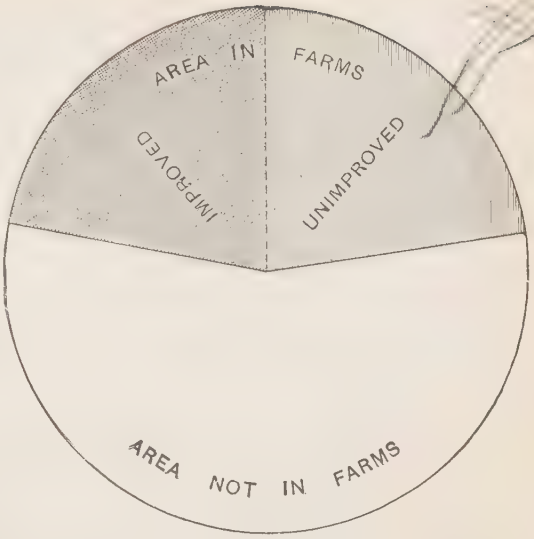


FIG. 238. — Extent of farming in the United States.

Figure 239 shows the regions that are most extensively engaged in raising corn. What states are included? In 1910 about two billion bushels were produced. How many bushels is that for each of our inhabitants? How is corn cultivated, and what are its uses (p. 77)? Which are the six leading states in corn production, and how do they rank as compared with one another (Fig. 240)?

4. Grains

Many of the states

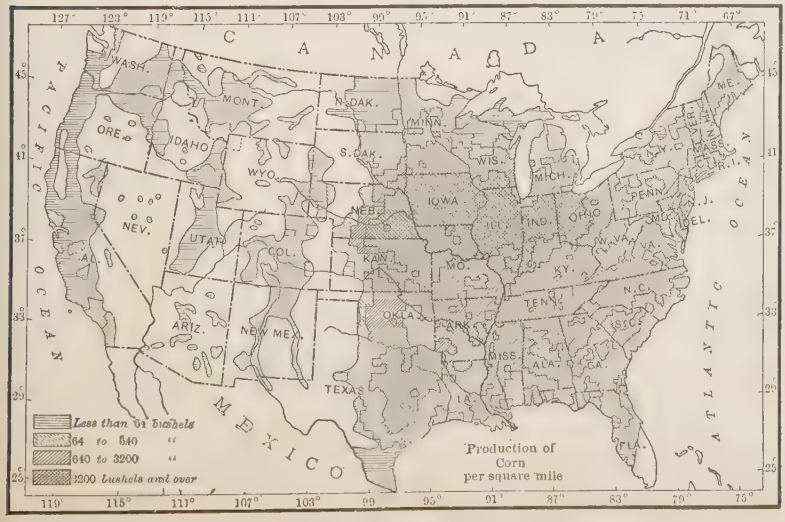


FIG. 239. — The corn regions of the United States.

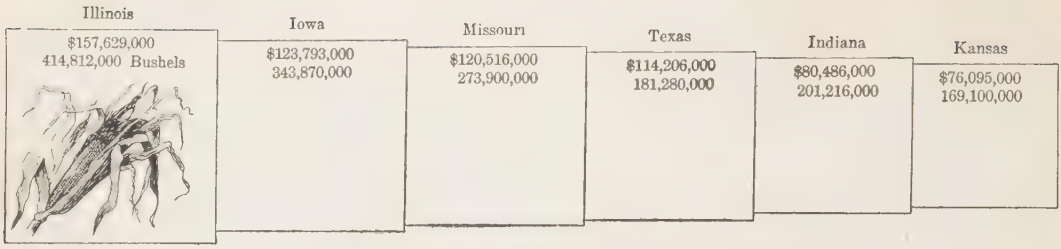


FIG. 240. — The six leading corn-producing states (1910).

that raise corn also raise much wheat. Figure 241 shows the principal wheat regions. Where are they? What can you tell about wheat in the valley of the Red River of the North (p. 78)? What are the uses of wheat? What states on the Pacific coast produce wheat? Name the six leading wheat states in the order of their importance (Fig. 242).

Corn and wheat are our most valuable food crops. Why is so little of either raised in the western half of the United States (p. 105)? Why so little in New England (p. 16)? What other grains do we raise, and for what is each used?

The cotton belt is confined entirely to the southeastern portion of the country,

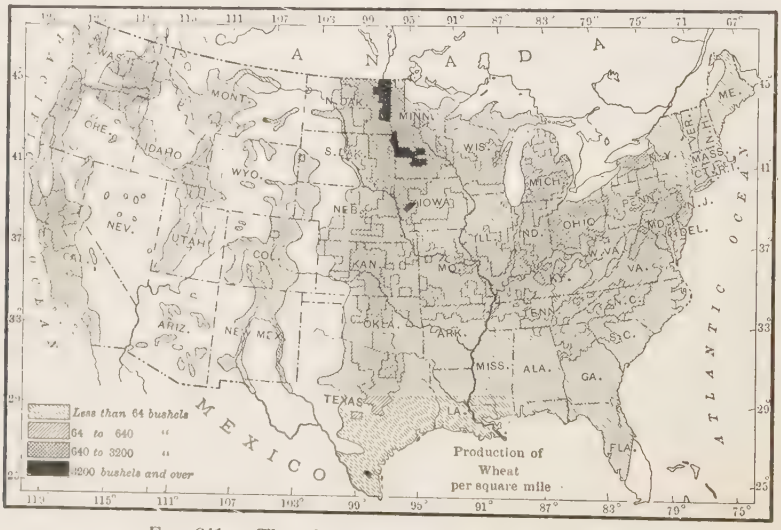


FIG. 241. — The wheat regions of the United States.

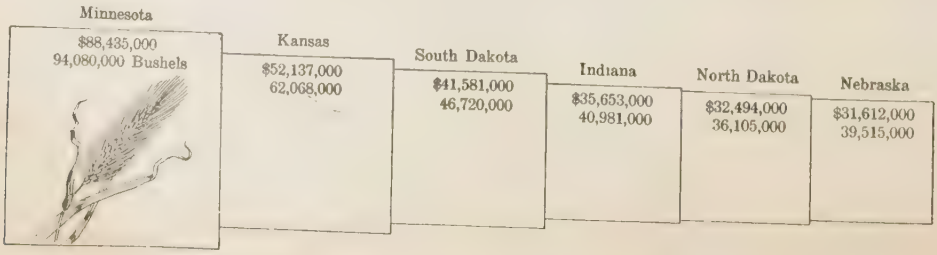


FIG. 242. — The six leading wheat-producing states (1910).

as shown in Figure 243. Why? Name the principal cotton-raising states and give their rank (Fig. 244). What do you know about the growth and uses of cotton (pp. 52 and 62)?

5. Cotton, sugar cane, and rice

Where in these states are sugar cane and rice grown? How is each cultivated (pp. 53 and 54)? How does Louisiana rank with our dependencies in the production of sugar cane (Fig. 246)? Which of our dependencies produce large amounts of cane sugar (Fig. 245)? What are the other sources of sugar? Where is beet sugar produced (pp. 53, 81)? Where is maple sugar made (p. 33)?

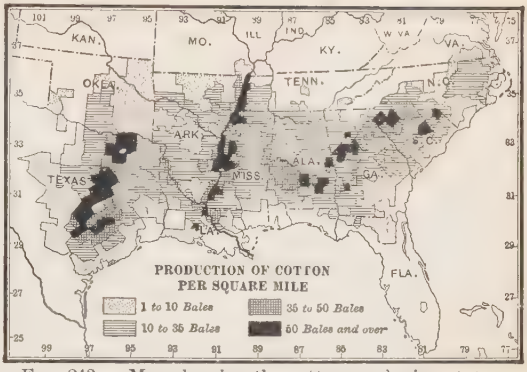


FIG. 243. — Map showing the cotton-producing states.

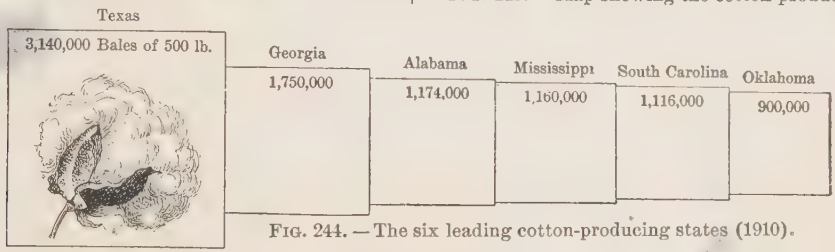


FIG. 244. — The six leading cotton-producing states (1910).

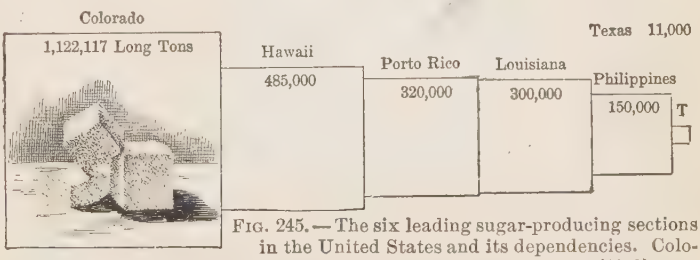


FIG. 245. — The six leading sugar-producing sections in the United States and its dependencies. Colorado, beet sugar; others, cane sugar (1910).

According to Figure 246, what states are largely engaged in tobacco growing? What is the appearance of the plant, and how is it prepared for use (pp. 55, 80)? Name and locate several cities that are noted for tobacco manufacture and trade (pp. 55, 96). In what section of New England is much tobacco raised (p. 17)?

6. Tobacco

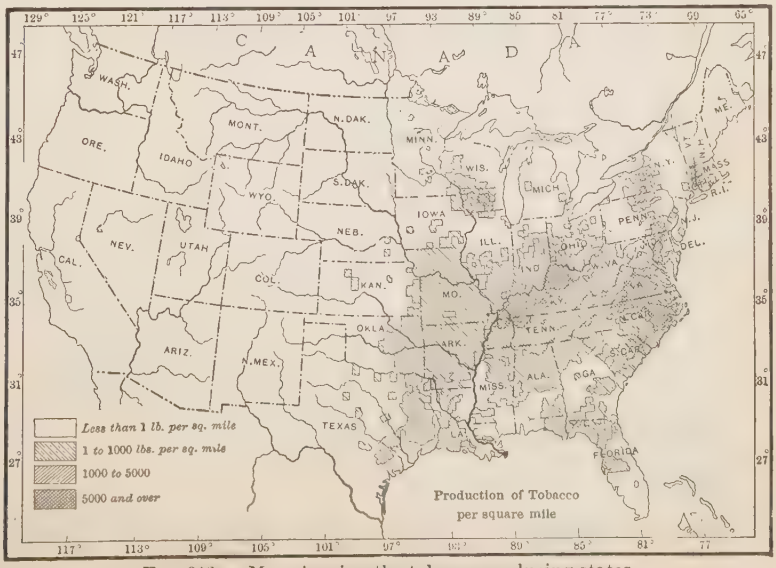


FIG. 246. — Map showing the tobacco-producing states.

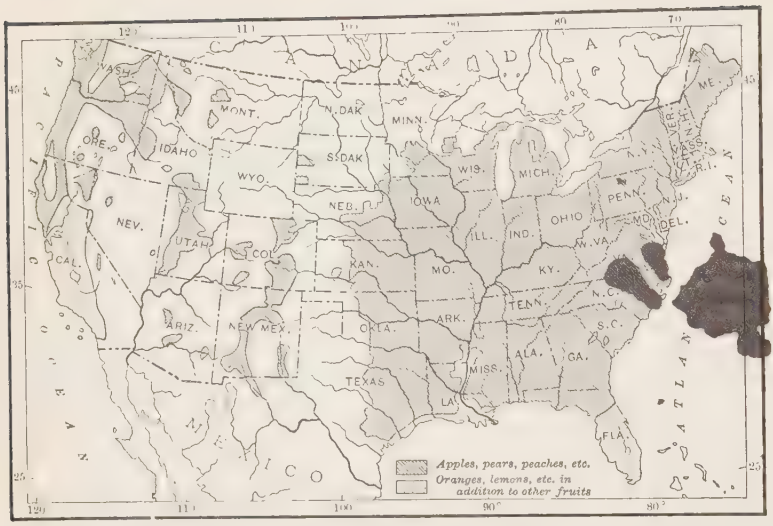


FIG. 247. — Map showing the leading fruit-growing regions of the United States.

Name fruits and vegetables that are extensively raised in the United States.

7. Fruits and vegetables

Figure 247 shows the sections that produce large quantities of fruit. What fruits are grown along the Eastern coast (p. 17); in the Southern States (p. 56); in California (p. 109)? In Florida, Cuba, and Porto Rico? Why is the region near the Great Lakes especially suited to fruit raising (p. 17)? What fruits are extensively grown there?

Why is truck farming especially important in New England (p. 16)? Where are early vegetables extensively raised (p. 55)?

Name and locate the principal irrigated sections in our western arid lands (Fig. 248). What are their products (pp. 108–1[illegible])?

Figures 249–254 show the principal states from which other important farm products come. Study each of them.

How does the value of hay (Fig. 249) in New York [illegible] lead-compa[illegible] ing farm with that [illegible] of corn in Iowa, and of wheat in Minnesota? Note that the states raising most

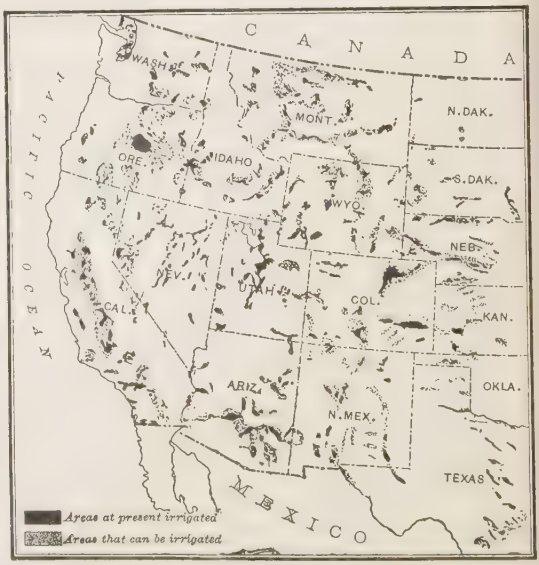


FIG. 248. — Map showing where irrigation is carried on in United States.

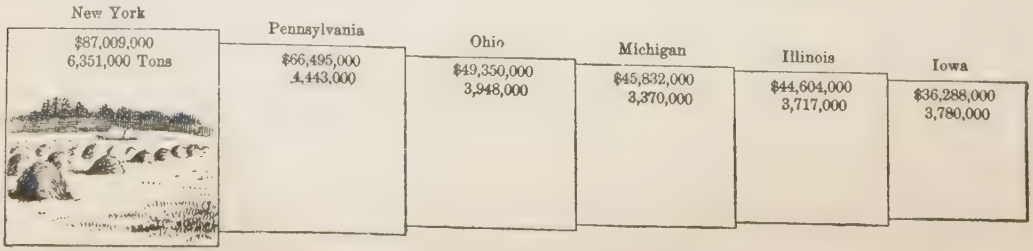
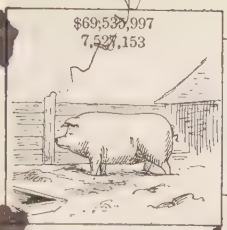


FIG. 249. — The six leading hay-producing states (1910).

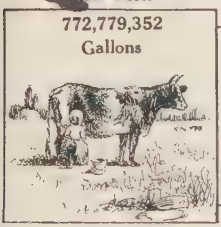
corn (Fig. 240) corresponds rather closely with those raising most hogs (Fig. 250). Why is that? Name the six leading dairy states (Fig. 251).

Point out, on the map (Fig. 6), the portions of the country largely given up to grazing. Why these? Relate how cattle ranching is carried on (p. 82); also sheep ranching (p. 114). Which states are most important in these industries (Figs. 252, 253)? What are the uses of ranch cattle (p. 94)? Of sheep (p. 115)? In which states are most horses raised (Fig. 254)?



Iowa	Illinois	Missouri	Nebraska	Kansas	Indiana
$69,538,997 7,527,153	$36,182,639 4,683,577	$31,878,568 4,429,429	$29,642,092 3,434,938	$24,681,180 2,997,319	$23,739,586 3,613,906

FIG. 250. — The six leading hog-producing states (1910).

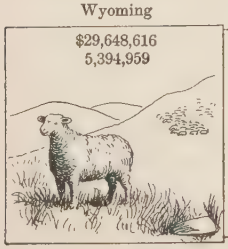


New York	Iowa	Pennsylvania	Wisconsin	Illinois	Ohio
772,779,352 Gallons	535,872,240	487,033,818	472,274,264	457,106,995	425,870,394

FIG. 251. — The six leading milk-producing states (1910).

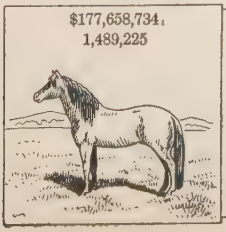
Texas	Iowa	New York	Kansas	Nebraska	Missouri
$129,130,917 6,721,502	$118,991,384 4,468,422	$83,015,622 2,421,593	$80,184,162 3,066,337	$73,048,897 2,931,255	$72,731,694 2,556,420

FIG. 252. — The six leading cattle-producing states (1910).



Wyoming	Montana	Idaho	Ohio	Oregon	New Mexico
$29,648,616 5,394,959	$28,999,239 5,372,639	$15,631,797 2,950,534	$14,932,790 3,907,055	$12,197,477 2,696,779	$11,905,380 3,264,012

FIG. 253. — The six leading sheep-producing states (1910).



Iowa	Illinois	Missouri	Kansas	Nebraska	Ohio
$177,658,734 1,489,225	$163,062,351 1,450,406	$113,707,841 1,070,913	$112,543,535 1,144,870	$102,706,582 1,006,550	$98,853,108 910,271

FIG. 254. — The six leading horse-producing states (1910).

Figure 255 shows the distribution of the forests in the United States. Describe the industry as it is carried on in Maine (p. 18); in the Southern States (p. 58); in Wisconsin (p. 85); in the Northwest (p. 120). Why these differences? Which are the most common kinds of trees in each section (Fig. 256)? What are the products of the forests besides lumber (pp. 33 and 64)? What states produce the greatest amount of lumber at present (Fig. 256)? Where are the leading forest reserves (Fig. 255)? Of what value are they?

Lumbering

4,097,492,000 Board Feet	3,733,900,000 Board Feet	2,122,205,000 Board Feet	2,084,633,000 Board Feet	1,891,291,000 Board Feet
Washington	Louisiana	Mississippi	Oregon	Wisconsin
Principal Species, Douglas Fir	Principal Species, Yellow Pine	Principal Species, Yellow Pine	Principal Species, Douglas Fir	Principal Species, Hemlock

FIG. 256. — The five leading lumber-producing states (1910).

In what sections is fishing especially important (Fig. 258)? What fish are caught on our eastern coast (p. 20)? On our Pacific coast (p. 122)? Tell what you can about the fishing industry in Alaska (p. 139). Describe how cod fishing is carried on (p. 22); salmon fishing (p. 122); the oyster industry (p. 59).

Fishing

About four hundred thousand men in our country are employed in mining. How many different metals can you name? How many other mineral products can you mention?

Mining

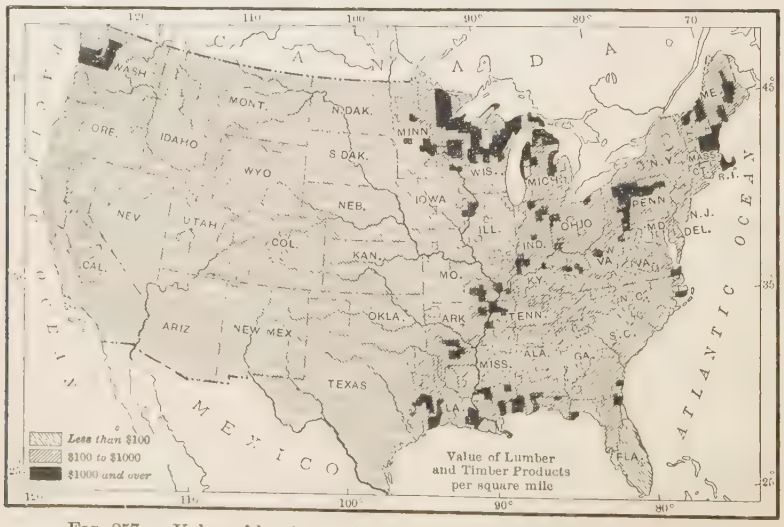


FIG. 257. — Value of lumber and timber products of the United States.

Of all the minerals, the *fuels* are probably the most important. Why? What kinds are there? Figure 259 shows how extensive the *coal beds* are. Name the states in

1. The fuels

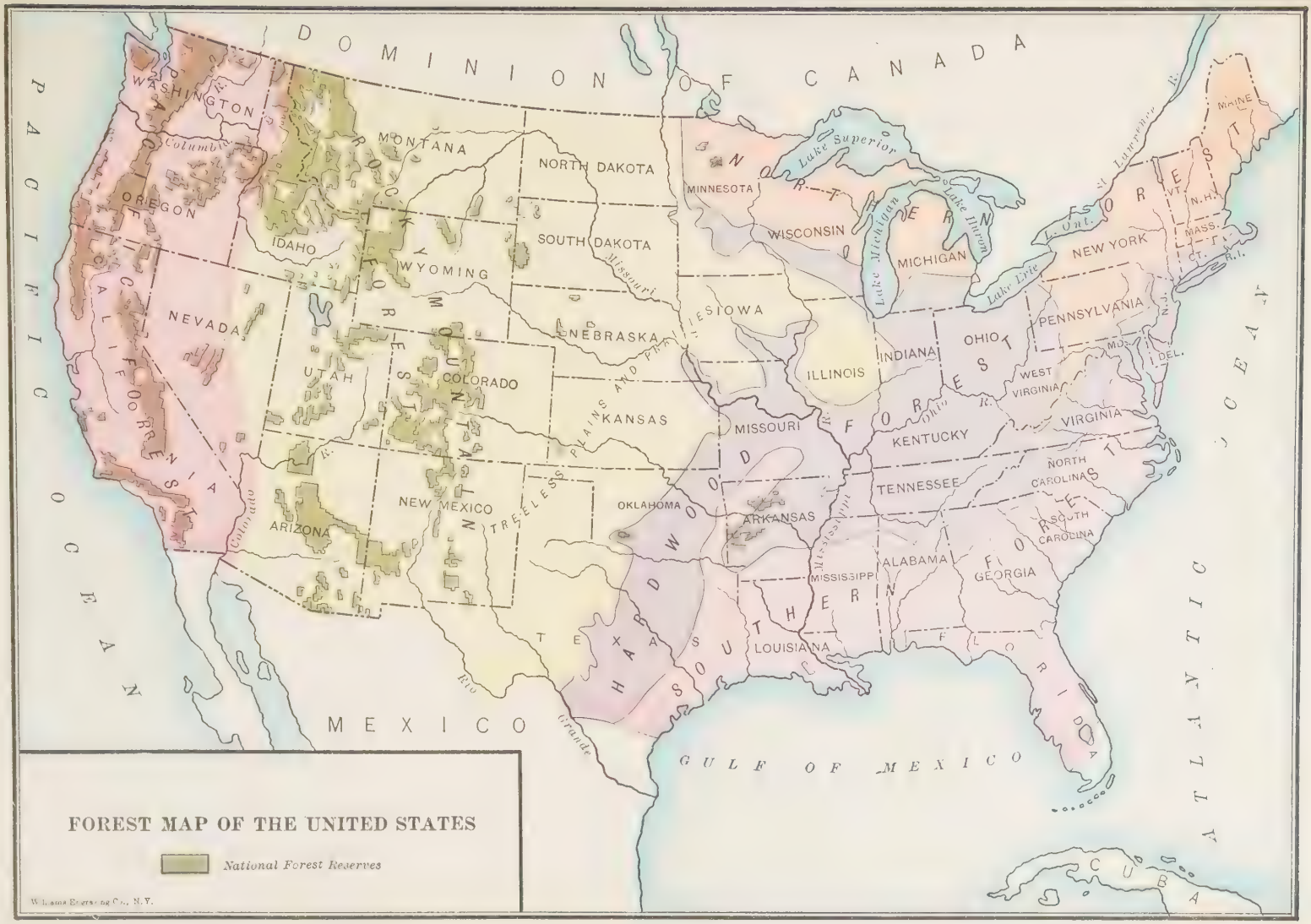

FOREST MAP OF THE UNITED STATES
National Forest Reserves
DOMINION OF CANADA
MEXICO
GULF OF MEXICO
PACIFIC OCEAN
ATLANTIC OCEAN
CUBA
WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOUISIANA
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
PENNSYLVANIA
NEW YORK
VT.
N.H.
MASS.
CT.
R.I.
MAINE
MD.
DEL.
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
L. Ont.
St. Lawrence R.
Columbia R.
Colorado R.
Rio Grande
Missouri
Mississippi
Ohio R.
NORTHERN HARDWOOD FOREST
SOUTHERN HARDWOOD FOREST
TREELESS PLAINS AND PRAIRIES
ROCKY MOUNTAIN FOREST
PACIFIC COAST FOREST

FIG. 255.

which the greatest quantities of coal are mined (Fig. 260). Of what importance is it that there are coal fields in so many parts of the country? What kinds of coal are there? What are the differences between them (p. 25)? Describe a coal mine (pp. 25–26). What are the uses of coal?

Name the chief sections in which petroleum and natural gas are found (Fig. 262.) Tell also how they have been produced and what their uses are (pp. 23–24).

2. Iron ore

The ores of iron are among the most important of the mineral products. Why so important? Where are the principal iron-producing regions (Fig. 259)? How is pig iron made (p. 28)? Why is not the Lake Superior district a favorable place for smelting iron ore? Name the six states that lead in production of iron ore (Fig. 261).

3. Precious metals

Describe three methods of gold mining (p. 116). What

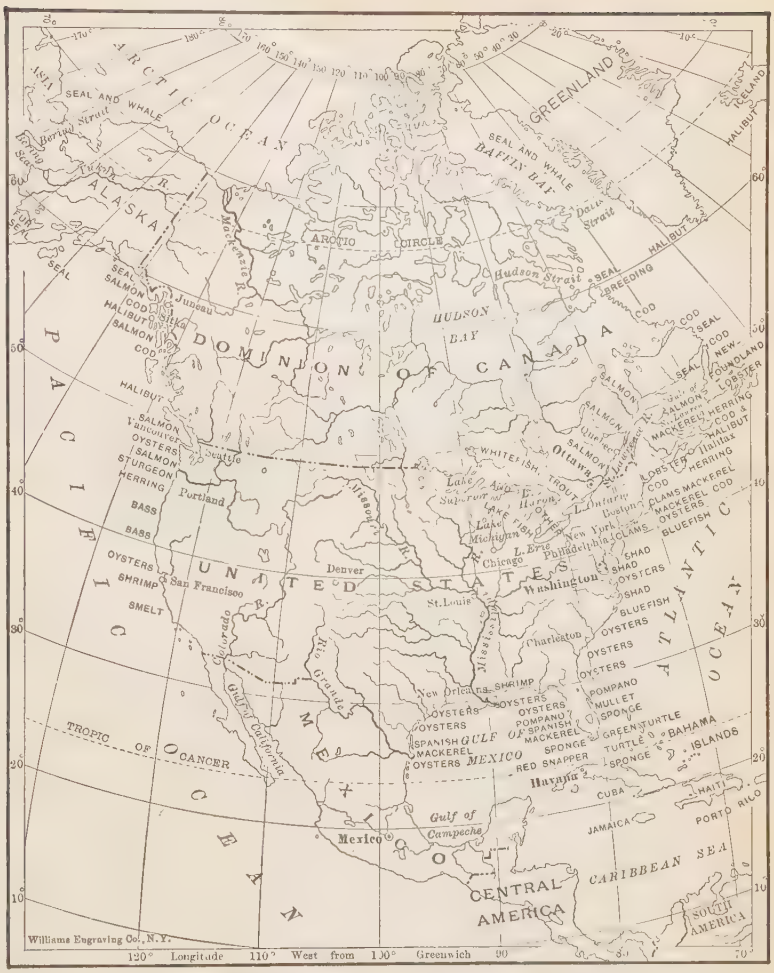


FIG. 258. — Map showing distribution of fish.

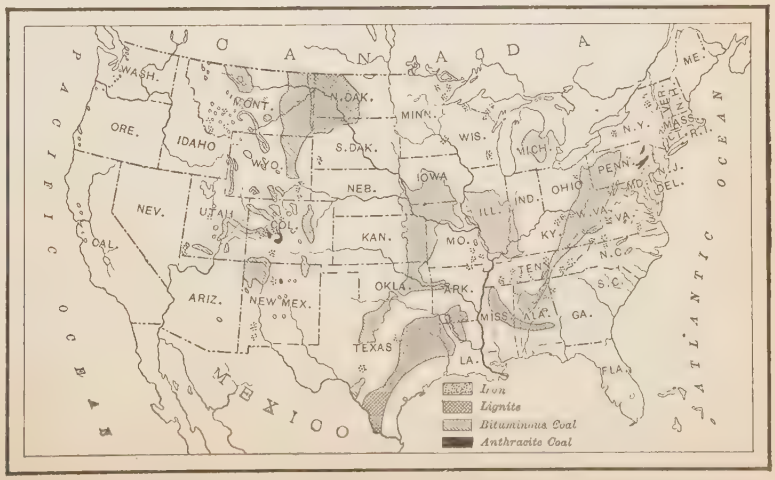


FIG. 259. — Map showing the distribution of deposits of coal and iron in the United States.

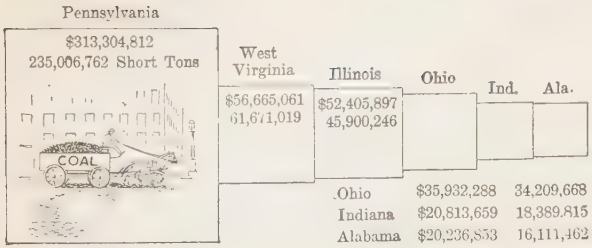


FIG. 260. — The six leading coal-producing states (1910).

that industry in two of the leading sections (pp. 88, 117, 130). Where and how is stone quarrying carried on in New England (p. 23)? How is salt obtained in New York (p. 23)? What other valuable mineral products can you name (pp. 61, 89, 119)?

4. Other mineral products

The four occupations that have been

can you tell about gold and silver mining in the Western States (pp. 116–118)? In what states is most gold and silver found (Figs. 263, 264)? How does the value of the gold produced in the six leading states (Fig. 263) compare with that of the silver in the six leading states (Fig. 264)?

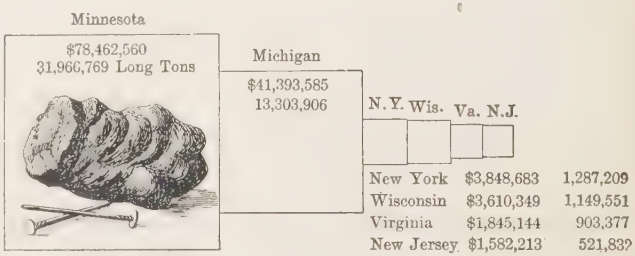


FIG. 261. — The six leading iron-producing states (1910).

What states are most noted for copper mining (Fig. 262)? Describe

named furnish the *raw materials* for our

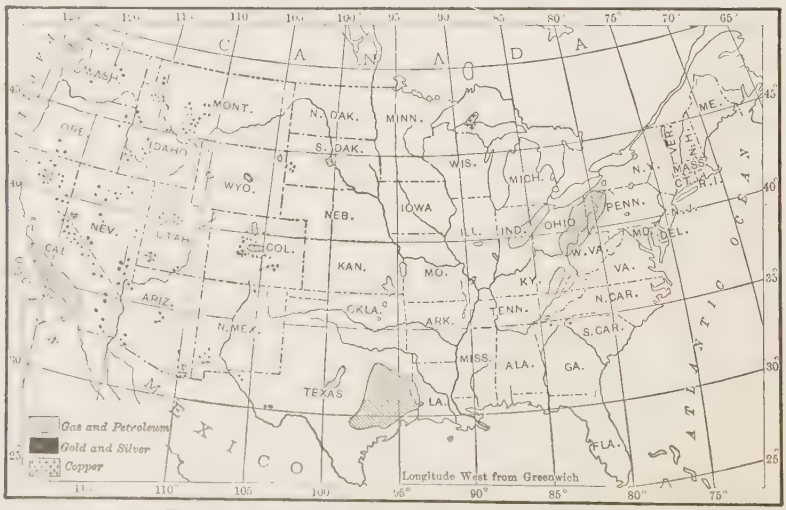


FIG. 262. — Mineral regions of the United States.

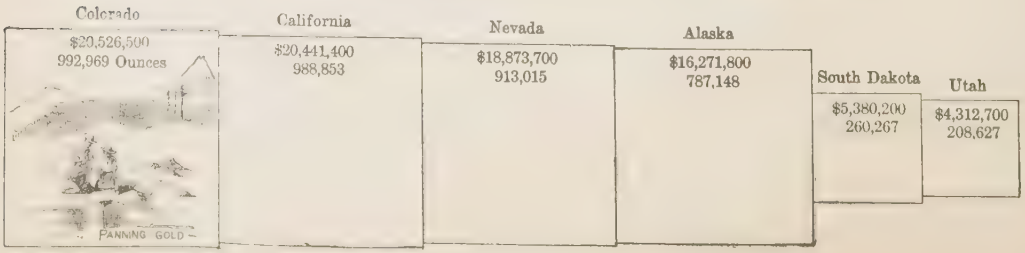


FIG. 263. — The six leading gold-producing states (1910).

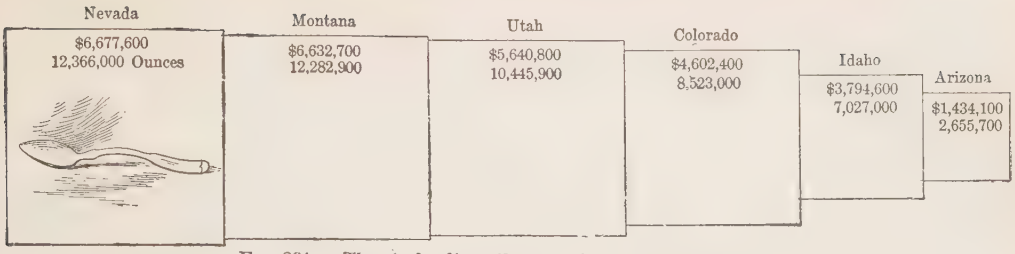


FIG. 264. — The six leading silver-producing states (1910).

food, clothing, and shelter. In the main, these four occupations, as stated, lead people to live in small towns or in the country. Persons engaged in the three other great occupations live for the most part in cities. These are manufacturing; the transportation of goods; and buying and selling, or trading.

Occupations of country and of city

Figure 265 shows the principal manufacturing sections in the United States. What states do they include? How does it happen that New England very early developed cotton manufacturing, although it raises no cotton (p. 31)? What other kinds of manufacturing are important there (pp. 28–33)? Name several of the leading manufacturing centers there, and tell the kinds of work in each. What states lead in textile manufactures (Fig. 266)? Where are the cotton and wool obtained?

Manufacturing

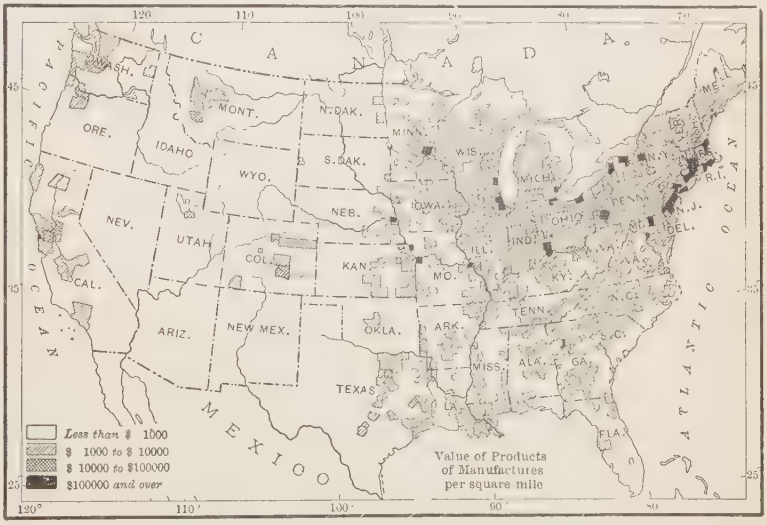


FIG. 265. — Map showing the leading manufacturing districts in the United States.

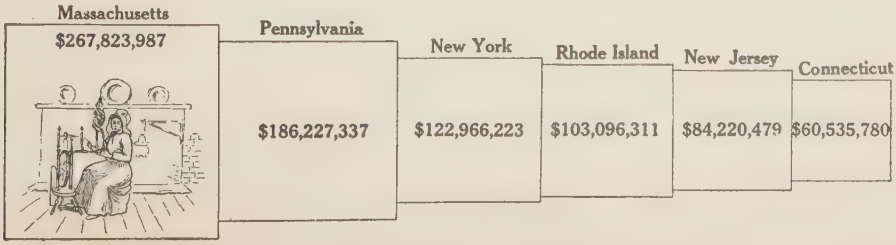


FIG. 266. — The six leading textile manufacturing states.

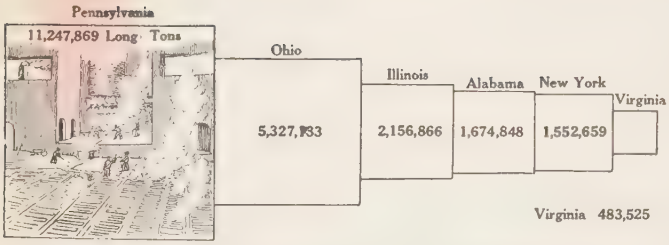


FIG. 267. — The six leading pig-iron-producing states (1906).

in the Northeastern States? How does the lack of coal mines in New England influence the manufacturing there (p. 29)? What reasons can you give why Pennsylvania leads in iron manufacturing? How are iron and steel made (p. 28)? Name three kinds of iron (pp. 28, 29). Name the six leading states in the production of pig iron (Fig. 267). In iron manufacturing (Fig. 268).

Tell about the manufacture of pottery in the Northeastern (p. 30) and in the Central (p. 91) States; about the manufacture of glass (p. 30); of cement (p. 31); of bricks (p. 30).

Tell about the advance in manufacturing in the Southern States (p. 61). What great advantage does Birmingham enjoy for the manufacture of iron goods (p. 60)? Name other important kinds of manufacturing in the Southern States (pp. 61–64). What are the leading manufacturing centers there, and for what goods is each important?

Into what goods are corn, wheat, and barley manufactured in the Central States (pp. 78, 89)? Name the great centers for the manufacture of flour (p. 79). What can you tell about the manufactures from forest products in the Central States (p. 90)? For what kinds of manufacturing is Chicago important (p. 93)? St. Louis (p. 96)? Cleveland (p. 95)? Kansas City (p. 99)?

How has the abundance of fruits in the Western States led to much manufacturing (p. 122)? Name some flour-manufacturing center in the Far West (p. 130). Name important centers for smelting of ores (p. 123). For what manufactures is San Francisco important (p. 125)? Portland (p. 128)? Seattle (p. 128)?

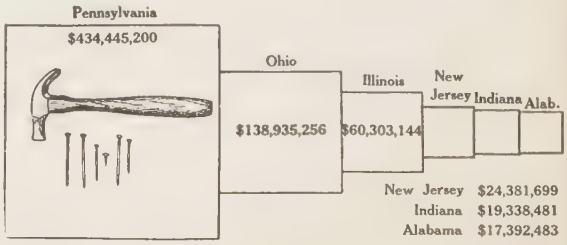


FIG. 268. — The six states leading in iron manufacturing (1906).

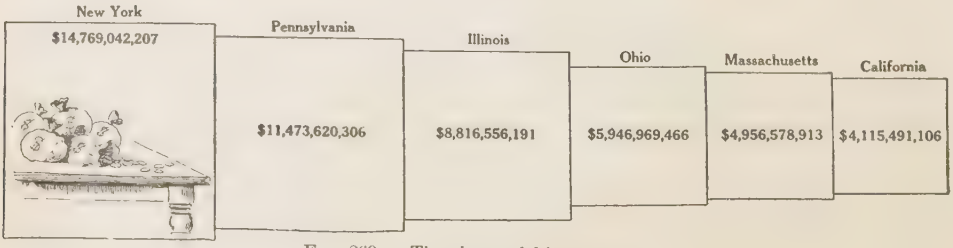


FIG. 269. — The six wealthiest states.

Manufacturing employs more workmen in the United States than any other industry, except agriculture. More than seven million men are engaged in it.

The six wealthiest states are shown

in Figure 269. Note that all these states are extensively engaged in manufacturing, as shown in Figure 265.

Transportation of goods

1. By water

The importance of being able to ship goods by water is clearly shown by the fact that every one of our twenty largest cities is situated on a water route of some kind. (See Appendix for this list.) Name the leading harbors along the Atlantic and Gulf coasts. Name those on the Pacific coast (pp. 125–129). Our seven leading ocean ports, in the order of their importance, are New York, Boston, Philadelphia, Baltimore, New Orleans, San Francisco, Galveston. Locate each.

What can you say about the importance of the Great Lakes for shipment of goods? How are these lakes connected by water with the ocean (Fig. 83)? By examining Figure 270, name the principal navigable rivers in our country.

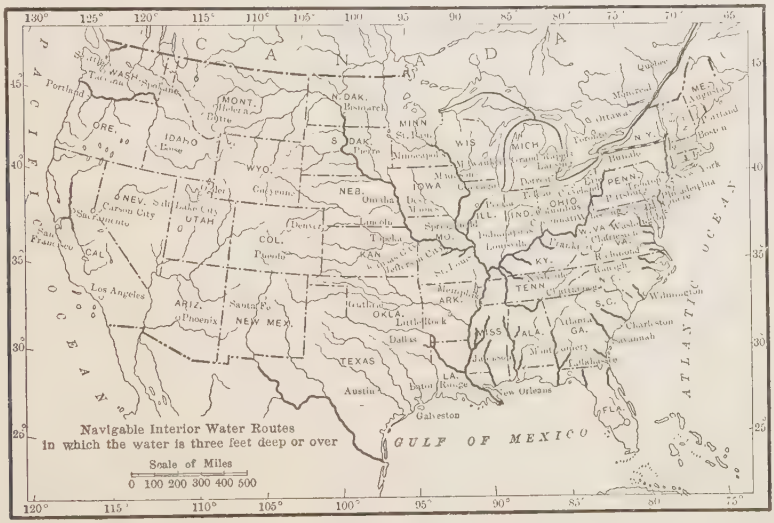
The Great Lakes carry about twice as much freight as the Mississippi system. Mention some of the principal kinds carried on each.

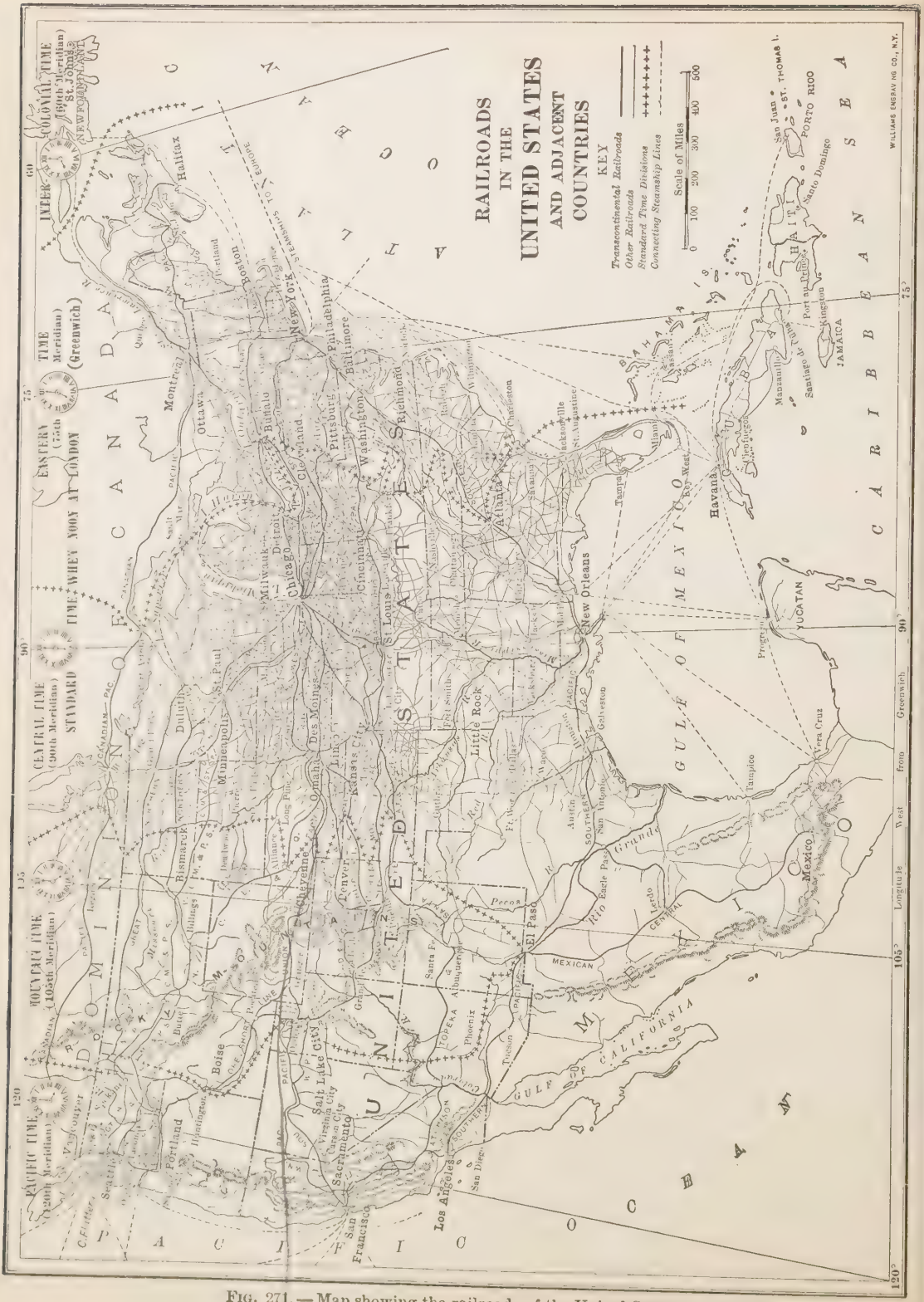
Where is the Erie Canal? Why has it been so important? Why has it become of less importance than formerly? Where else are canals found (pp. 91 and 157)?

2. By rail

Figure 271 shows an enormous number of railways in the United States. They now carry fully three times as much freight as all the water routes together. In what part of the country are most of them found? Why there? Which section is next best supplied with them? Which portion has fewest lines? How does the location of railway lines on this figure compare with the location of cities on Figure 236?

What is the *direction* of a majority of the railway lines? Count the number of railways that extend east and west across the western half of the continent (Fig. 271). In what city on the Pacific coast does each of the transcontinental lines terminate?


Navigable Interior Water Routes
in which the water is three feet deep or over
Scale of Miles
0 100 200 300 400 500
GULF OF MEXICO
ATLANTIC OCEAN
PACIFIC OCEAN
CANADA
Portland
Los Angeles
San Francisco
Sacramento
Carson City
Salt Lake City
Denver
Pueblo
Santa Fe
Phoenix
Omaha
Des Moines
Spring field
Topeka
Little Rock
Dallas
Austin
Galveston
New Orleans
Baton Rouge
Jackson
Montgomery
Atlanta
Charleston
Savannah
Wilmington
Raleigh
Richmond
Norfolk
Washington
Philadelphia
Harrisburg
Pittsburgh
Cleveland
Columbus
Indianapolis
Springfield
Lansing
Detroit
Toronto
Ottawa
Montreal
Quebec
Boston
Portland
Hartford
New York
Buffalo
Albany
Lexington
Frankfort
Nashville
Memphis
Jackson
Tallahassee
Jacksonville
Mobile
Montgomery
Cheyenne
Helena
Bismarck
Pierre
Lincoln
Cheyenne
Salt Lake City
Carson City
Sacramento
San Francisco
Los Angeles
Portland
Tacoma
Spokane
Boise
Cheyenne
Denver
Pueblo
Santa Fe
Phoenix
Omaha
Des Moines
Springfield


RAILROADS
IN THE
UNITED STATES
AND ADJACENT
COUNTRIES
KEY
Transcontinental Railroads
Other Railroads
Standard Time Divisions
Connecting Steamship Lines
Scale of Miles
0 100 200 300 400 500
PACIFIC TIME (120th Meridian)
MOUNTAIN TIME (105th Meridian)
CENTRAL TIME (90th Meridian)
STANDARD TIME WHEN NOON AT LONDON
EASTERN TIME (75th Meridian)
INTER COLONIAL TIME (60th Meridian) St. John's
NEWFOUNDLAND
Greenwich
Longitude West from Greenwich
WILLIAMS ENGRAV. NG CO., N.Y.
CANADA
DOMINION OF
UNITED STATES
MEXICO
GULF OF MEXICO
CARIBBEAN SEA
ATLANTIC OCEAN
PACIFIC OCEAN
GULF OF CALIFORNIA
BAHAMA
HAITI
JAMAICA
PORTO RICO
YUCATAN
Halifax
Boston
New York
Philadelphia
Baltimore
Washington
Richmond
Montreal
Ottawa
Buffalo
Cleveland
Pittsburg
Detroit
Chicago
Milwaukee
Cincinnati
St. Louis
Charleston
Jacksonville
St. Augustine
Savannah
Wilmington
Atlanta
Nashville
Louisville
Memphis
Little Rock
New Orleans
Galveston
Tampa
Havana
Key West
Nassau
Manzanillo
Santiago de Cuba
Port au Prince
Kingston
Santo Domingo
San Juan
ST. THOMAS I.
Vera Cruz
Tampico
Progreso
Mexico
Duluth
St. Paul
Minneapolis
Des Moines
Omaha
Kansas City
Denver
Cheyenne
Bismarck
Billings
Helena
Butte
Spokane
Portland
Tacoma
Seattle
Vancouver
Boise
Salt Lake City
Virginia City
Carson City
Sacramento
San Francisco
Los Angeles
San Diego
El Paso
Albuquerque
Santa Fe
Phoenix
Tucson
Pecos
Rio Grande
Rio Pecos
Austin
San Antonio
Houston
Galveston
Mobile
Atlanta
Charleston
Jacksonville
Tampa
Key West
Havana
Nassau
Manzanillo
Santiago de Cuba
Port au Prince
Kingston
Santo Domingo
San Juan
ST. THOMAS I.
Vera Cruz
Tampico
Progreso
Mexico
Yucatan

TRUNK LINE RAILROADS
IN EASTERN PART OF
UNITED STATES
Cities with over 1,000,000 New York
Cities with 200,000 to 1,000,000 Buffalo
Cities with 100,000 to 200,000 Omaha
Smaller Cities Duluth
State Capitals Other Cities
Trunk Lines thus
Other Railroads thus
Steamship Lines thus
Scale of Miles
0 50 100 200 300 400
WILLIAMS ENGRAVING CO., N.Y.
Lake Superior
Lake Michigan
Lake Huron
Lake Ontario
L. Erie
GULF OF MEXICO
ATLANTIC OCEAN
Bismarck
Fargo
Duluth
Sault Ste. Marie
Montreal
Ottawa
Minneapolis
St. Paul
Eau Claire
Oshkosh
Milwaukee
Chicago
Detroit
Toronto
Buffalo
Rochester
Syracuse
Albany
Boston
Portland
Providence
Fall River
New Haven
New York
Jersey City
Newark
Philadelphia
Baltimore
Washington
Pittsburg
Cleveland
Toledo
Saginaw
Grand Rapids
Lansing
Madison
Dubuque
Davenport
Des Moines
Omaha
Lincoln
Sioux City
Yankton
Sioux Falls
Pierre
Deadwood
Cheyenne
Denver
Colorado Springs
Pueblo
St. Joseph
Atchison
Leavenworth
Topeka
Kansas City
Leavenworth
Hannibal
Springfield
Quincy
Peoria
Bloomington
Indianapolis
Cincinnati
Columbus
Dayton
Frankfort
Louisville
St. Louis
Wichita
Guthrie
Ft. Smith
Little Rock
Memphis
Nashville
Knoxville
Chattanooga
Atlanta
Birmingham
Montgomery
Mobile
Pensacola
Tallahassee
Jacksonville
St. Augustine
Savannah
Charleston
Columbia
Charlotte
Raleigh
Wilmington
Norfolk
Richmond
Lynchburg
Texarkana
Shreveport
Jackson
Vicksburg
Dallas
Ft. Worth
Waco
Austin
San Antonio
Houston
Galveston
Baton Rouge
New Orleans
Tampa
Canadian R.
Arkansas R.
Red R.
Pecos R.
Rio Grande
Platte R.
Mississippi R.
Georgian Bay
STEAMSHIPS TO EUROPE

Fig. 272

The number of miles of railroad, in proportion to area, is greatest in the Northeastern and Central States. The names of the principal railroads in the East are shown in Figure 272. Note how the roads come together at the great centers of manufacturing and commerce.

Trade is the third occupation that attracts great numbers of people to cities.

Buying and selling, or trade

Every one knows that it is important to have stores scattered about over the country, in towns and villages, where one can purchase the articles that he needs from day to day.

But there could not well be such stores unless there were great centers of trade where the storekeepers themselves could buy the goods that they wished to sell later. This is called *wholesale trade*, and is one of the leading occupations in the great cities.

Our greatest center for the wholesale trade is New York City. Describe how it is carried on there (pp. 38–39). What goods are sold? Name other great centers for wholesale trade, and some of the goods that are sold. What goods are extensively sold in New Orleans (p. 54)? Memphis (p. 69)? Indianapolis (p. 100)? Denver (p. 130)?

Fully four million persons in the United States are engaged in the transportation of goods and in trade, or in *commerce*, as these two kinds of business together are called.

Dependence of country and city upon each other

The relation between country and city is now clear. About one half of our people are engaged in obtaining raw materials through agriculture, lumbering, fishing, and mining. The remainder are employed mainly i manufacturing these raw materials int useful articles, or in buying, selling, an transporting them. Show by numerou examples how neither class can well d without the other.

Differences i manner of lif

Although the two classes are so dependen on each other, the life of one is very differen from that of the other. Recall farm life as described on page 76. What idea have you formed of farm life on Southern plantations? Of th ranchman's life (p. 84)? Of the miner' manner of living (p. 131)? The lumberman' (p. 20)? The fisherman's (p. 22)?

Recall, on the other hand, what was said abou life in New York City (p. 39). Give your ide of factory life; of life in trade and transporta tion. Which of these several occupations d you consider most attractive? Which leas attractive?

It is difficult to say which occupation require the hardest work, for success demands one best effort, no matter what the occupation ma be. Which are more sure of simple food, clot ing, and shelter, those living in the city or thos in the country? Why? Which are more i dependent in general? Why? Which hav the better opportunities for amusement? Why For education? Why? For homes with plent of light and fresh air? Why?

For many years the population of cities ha been increasing more rapidly than that of th country, which suggests that people prefer cit to country life. Can you give any reasons f this, in addition to those already mentioned?

Dependence of different sections upon one another

No one place produces all that it need Which of your foods are not raised nea your home? How about th knives, forks, dishes, an spoons? How about th clothes that you wear?

Because of the climate, water powe soil, or for some other reason, each pa of the country is especially fitted f producing certain things; for instanc eastern Kansas, grain; western Kansa

tock; northern Maine, lumber, etc. Indeed, most of the articles used in any art of the country must be brought from ther places.

Name the materials that the Montana ranchman needs to obtain from the Southern planter; from New England; from Minneapolis; hicago. Upon what parts of the United States re the inhabitants of Florida dependent? Vhat do they supply in return? Make a list of aterials used in the building of your house nd, as far as possible, determine where each one ay have come from.

It is plain that the different parts of he country are of vital importance to ne another, much as different parts of he body are.

ur relation o our ependencies

In spite of our broad territory, and he enormous number of our products, there are some necessary articles that are either entirely lacking or cannot be roduced in sufficient quantities within ur own borders in America. Name a ew. (See Table of Imports, p. 388.) Mention some that we are therefore glad to eceive from Alaska; Cuba; Porto Rico; he Hawaiian Islands; the Philippines. Mention others that they, likewise, are lad to receive from us. State, then, ow the United States and its dependencies are of advantage to each other.

2. Other Countries of North America

Canada and Newfoundland

The principal industries in southern anada and Newfoundland are similar to hose in our Northern States. What about agriculture in hose countries (pp. 151, 152)? Where s coal mined in them (p. 153)? Precious metal (p. 152)? What about grazing (p. 151)? Lumbering (p. 153)? Fishing and sealing (p. 156)? Compare the raw products of southern Canada with those of our Northern States. Name and locate the principal cities; the leading trade route. Mention the chief kinds of manufacturing (pp. 158–160).

Mexico

Describe the surface features and the climate of Mexico (p. 163). What are the agricultural products from its arid plateaus (p. 264)? From its lowlands (p. 166)? From the slopes between (p. 166)? Tell about the forests of Mexico (p. 164); the mining (p. 166). Give some reasons why there is so little manufacturing in that country (p. 167). Locate the principal cities.

Central America and West Indies

Name the six republics of Central America. Describe the surface of the country and the climate (p. 168). Name the principal industries (p. 168). Tell about the canal across the isthmus (p. 144).

Mention the largest islands among the West Indies. What are their chief industries (p. 170)?

3. Relation of United States to Other Countries

Need of our sending away some goods and receiving others

What industries found in the United States are not found, or are little developed, in Canada? In Mexico? In Central America? What industries of any one of the latter countries are not found in the United States?

The United States as a whole, as well as most of its sections, produces far more of some materials than its people can consume. Other important articles must come wholly, or in part,

from other countries. Give examples of each.

If we could not secure a market for our products in foreign lands, we should suffer greatly; and if foreign countries did not provide us with what we need, we should suffer again. Other countries are in the same condition. Show how it is true of Canada; of Mexico. There are excellent reasons, therefore, for a constant exchange of goods among the nations of the world. How does the size of our country give us a great advantage in this respect?

The names of such goods, and their value

The goods that we send forth are called *exports*, and those brought in, *imports*. Examine the tables of exports and imports on pp. 388 and 389 and note some of the products that we send away and some that we receive, as well as the countries with which we trade.

More than half of all our exports and imports are sent by way of New York. Why? Other ports next in importance have already been named (p. 185). What are their names? The total value of our exports in 1911 was $1,536,561,442; of our imports, $824,620,160.

Meaning and object of "duties"

Some imports are allowed to enter the country free; but upon most of them there is a *duty;* that is, a tax for entering our country. This duty is a source of income, or *revenue*, for the government. It is also intended to protect our industries by preventing foreign products from being sold in our country at a lower rate than that at which we can produce them.

However, this sometimes causes hardship. For example, a citizen of the United States, living near the border of Canada, has not been allowed to buy lumber and wood pulp from that country without paying a duty upon them. This causes us to pay a higher price for many articles than we would have to pay if no duty were placed upon them. Under such conditions the boundary line between two neighboring countries becomes a hindrance to trade.

4. Value of Steam and Electricity in Development of North America

Advances made in a century

The use of steam upon the water ways and railways has been of the greatest influence in the development of our country. A century ago it required two days to travel from New York to Philadelphia, and six days from New York to Boston, the latter journey being possible only twice a week by stage.

At that time there were but thirteen daily newspapers in the United States, and neither papers nor books could be sent by mail. To send a letter cost from six to twenty-five cents, according to the distance; and because the expense of carrying letters was great, they were not sent from the smaller towns until a sufficient number were collected to make it worth while.

We can now travel as far in an hour as our forefathers could travel in a day, and with much greater comfort. There are over two thousand daily newspapers, and these, as well as letters, may be sent quickly and cheaply to every section of the country. We can send a telegram to a distant point in an instant, and can talk by telephone with a person hundreds of miles away, even recognizing the tones of his voice. How wonderful these facts would have been to persons living a hundred years ago!

The effect of such mighty changes is seen in every direction. Each year

thousands of carloads of fruit are shipped to Eastern cities from California. If there were no railways, how could such fruits reach these cities? What, then, would be the effect on southern California? Also, how could the corn of the Central States be marketed? And how could furniture, sugar, and coffee be brought to the Western farmer's door?

The importance of these advances

If our railway trains and steamboats should all suddenly stop running, there would be a famine in every large city within a few days. Even now, when heavy falls of snow block the trains for a day or two, the supply of milk, meat, and other foods quickly runs low, and the prices rise to several times their usual value.

When our Union was formed, more than a century ago, many wise persons believed that it was bound to be a failure. Our population was so scattered (Fig. 9) that people living in one part were likely to know and care little about those in other and distant parts. It seemed probable that quarrels and wars would arise, due to differences of opinion, and therefore that our Republic might be split into several rival countries.

Their influence on government

Just the opposite has happened. Our people are closely united in interests, and are working well together. At the same time our boundaries have been so enlarged as to include far more territory than was at first thought possible (Fig. 10).

Aside from that, since 1821, millions of foreigners have settled in this country, representing all the principal races of mankind (See Appendix), and many of the leading languages, religions, and political beliefs of the world. In spite of all this, we have kept in such close touch with one another that our Union has grown stronger and stronger.

Each day, by rail and water, articles are sent to all parts of the country. In all the states the people read the same news every morning; and whatever books are found especially valuable in one section quickly become known in others. Thus we enjoy far better opportunities for education than formerly, and we learn to *know* one another; we have the same thoughts, and we feel a common sympathy. So far as meeting and understanding one another are concerned, our country is really far smaller than it was a hundred years ago; we are living together like one very large family.

PART II. GENERAL GEOGRAPHY

SECTION I. WINDS AND RAIN

1. Winds[1]

In our study of North America, we have learned that the winds of different sections come from different directions. For example, in the West Indies, in Central America, and in southern Mexico, the winds usually blow from the *northeast*; but on the western side of the continent, all the way from San Francisco to Alaska, the wind blows quite regularly from a *westerly direction*. In the eastern part of the United States, on the other hand, the winds are irregular in direction, although they blow more often from the *west* than from any other quarter.

Principal winds of North America

Many other parts of the earth have regular winds, just as North America has. In fact, there are regions extending all the way around the earth — like wide belts — where the winds come generally from the same quarter. These wind belts are

Principal winds of the earth

Fig. 273. — A diagram to show the principal wind belts of the earth.

[1] For latitude, longitude, standard time, and revolution of the earth, see Appendices I and II, pp. 392–399.

shown somewhat clearly by the arrows in Figure 405.

Make a list of the names that you find on this map. Near the equator you find the *Belt of Calms* which is several hundred miles wide. The winds are blowing toward this hot region from both sides. Those on the north are called the *northeast trade winds;* those on the south, the *southeast trade winds.* These trade winds start hundreds of miles away, in the temperate zones, and blow steadily toward the equator, day after day and month after month.

All the air that moves toward the equator in these trade winds must escape somewhere. It really rises in the torrid zone; and since the air is moving *upward,* no wind can be felt in this belt. It is therefore a belt of calms. What winds do blow are usually light and changeable.

The air that rises in the belt of calms flows away, high above the surface, toward the north and the south. It forms the *return trade,* or *antitrade winds,* which blow above the trade winds, and in the opposite direction. Some of this air continues on, far to the north in the northern hemisphere, and far to the south in the southern hemisphere. But some of it settles to the earth in the belts called the *horse latitudes.* Since the air here is coming down, little wind is felt. The horse latitudes, therefore, are also belts of light winds and calms. Beyond the horse latitudes, in each hemisphere, the winds usually blow from a westerly direction. These two wind belts are called, therefore, the *prevailing westerlies.* It is in the northern belt that most of the United States is situated. In what belt do Mexico and Central America lie? What part of North America is in the horse latitudes? Where does the belt of calms cross the New World?

Irregular winds of eastern United States

Although eastern United States lies in the belt of prevailing westerlies, its winds are quite irregular. The greatest number blow from the west; but there are also many winds from the north, south, and east. The reason for this is that the direction of the wind is changed by storms, called *cyclonic storms,* which move across the country from west to east. The wind blows from all sides toward the center of such storms, as is shown in Figure 278. Thus, at a certain place the wind on one day may be from the east; then, as the storm slowly moves eastward, the wind at that place changes to south, then to the west, etc.

2. Rain

Relation of winds to rain

Knowing the wind belts of the earth, we have a key to the principal rain belts; for the winds are the water carriers of the earth. Water that rises as vapor is borne along in the air and descends to the earth as rain or snow. It falls in great abundance in some places, and scarcely at all in others.

Principal cause of rain

Where the wind brings much vapor, there can be an abundance of rain; but where it has little vapor, the rainfall must be light. Winds that blow from the ocean bring the most vapor, for more vapor rises into the air from the ocean than from the land. It is very important, therefore, whether the prevailing winds are from the land or from the ocean.

These facts are well illustrated in the rains of North America. The northeast trade winds, which gather a large amount of vapor from the ocean, deposit it on the northeastern slopes of the West Indies, southern Mexico, and Central America. But the southwestern slopes of the West Indies receive a much smaller quantity of rain; and the western coast of Mexico is quite arid.

The regular rain belt; 1. In North America

Farther north the prevailing westerlies, having traveled a long distance over the Pacific Ocean, likewise cause heavy rains along the western coast of North America (Fig. 274). These winds lose much of their moisture in passing over the western highlands, and the land farther east, therefore, receives very little rain.

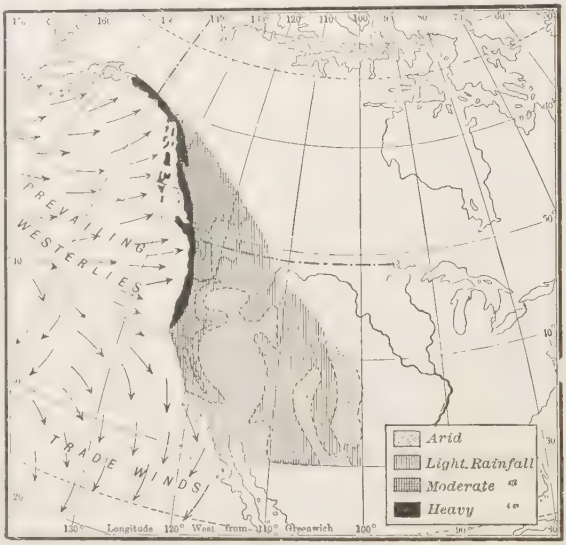


FIG. 274.—The heavy rainfall where the prevailing westerlies blow over the rising coast. What is the condition farther east? What is the case where the trade winds blow? Why?

Northern Mexico and the southwestern part of the United States, which lie within the horse latitudes, receive very little rain and are arid. This is true even at the very seashore in southern California. The reason for this is that the air in the horse latitudes is constantly descending and becoming warmer; and air that is growing warmer will take up more vapor, instead of giving up what it has.

As you study about other parts of the world you will find that the same thing is true there as in North America. This is illustrated in the map showing the rainfall of the world (Fig. 275). There you see that the heaviest rainfall in Europe is on the western side, because the prevailing westerlies blow upon that coast. In the southern belt of prevailing westerlies, in South America also, the heaviest rainfall is on the western coast, and there is little rainfall farther east.

2. In other regions of heavy rainfall

Find places in Asia, South America, and Africa where there is heavy rainfall on the eastern coasts in the trade-wind belts. The belt of heaviest rainfall is in the belt of calms. The reason for this is that the air there rises; and air that is rising is growing cooler and is therefore forced to give up some of its vapor, forming clouds and rain. In the belt of calms it rains day after day, for the air there is steadily rising and growing cooler.

The map of rainfall of the world (Fig. 275) shows places where there are less than ten inches of rain a year. Such places are usually deserts, since there is too little rain for most kinds of plants to grow. Some of these deserts lie in the dry belts of the horse latitudes;

3. In desert regions

ARCTIC OCEAN
GREENLAND
ARCTIC CIRCLE
ICELAND
Hudson Bay
BERING SEA
NORTH AMERICA
ATLANTIC OCEAN
EUROPE
ASIA
JAPAN
MIDWAY I.
TROPIC OF CANCER
WAKE I.
HAWAIIAN IS.
PHILIPPINE IS.
GUAM I.
PACIFIC
BORNEO
SUMATRA
NEW GUINEA
JAVA
EQUATOR
AFRICA
CEYLON
SOUTH AMERICA
INDIAN OCEAN
MADAGASCAR
OCEANIA
TROPIC OF CAPRICORN
AUSTRALIA
TASMANIA
NEW ZEALAND
Cape Horn
MEAN ANNUAL RAINFALL OF THE WORLD
Under 10 inches
10 to 20 inches
20 to 60 inches
60 to 120 inches
Over 120 inches
Longitude East
Longitude West
Longitude from Greenwich
Longitude East
WILLIAMS ENGRAVING CO., N.Y.

FIG. 275.

and some lie where mountain ranges have cut off the supply of vapor from the ocean. But some of the largest deserts, like those of Africa, Asia, and Australia, lie in the trade-wind belts.

It may seem strange that the trade winds cause heavy rainfall on the coasts against which they blow, and deserts in other places. The reason is simple. On reaching any coast after blowing over the ocean, they are laden with vapor; and, as they rise over the land, the air is cooled and thus forced to drop some of this moisture. On the other hand, winds that have blown for a long distance over the land contain less vapor; and they keep most of this, unless they happen to pass over land that is high enough to cool the air greatly.

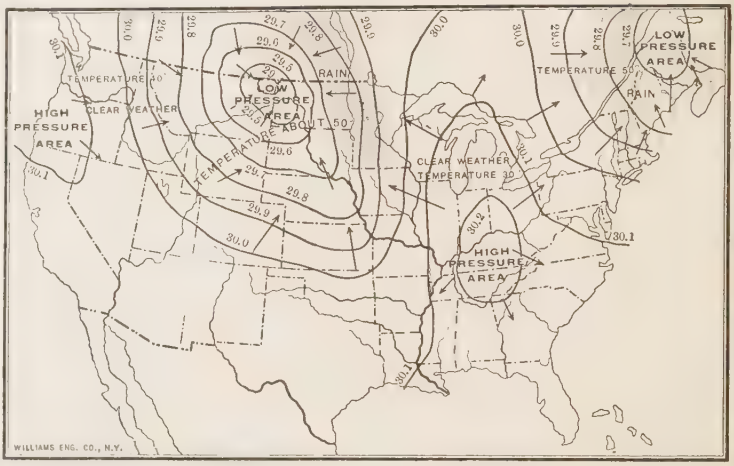


FIG. 277.—A weather map of the United States on a winter's day. The center of the storm—where the air is lightest—is the place marked *low pressure area.* The arrows show the wind blowing toward this point from all sides. The figures show the pressure of the air, as measured by an instrument called the barometer.

Thus far only the *regular* wind and rain belts have been considered. From what has been said, one might expect that the west winds, so dry after passing over the highlands of western United States, would continue eastward and cause our Central and Eastern States to be arid. As a matter of fact, we know that plenty of rain falls in this section, as shown by Figure 276. We know, too, that there are no very regular winds over this entire area; on the contrary, both winds and temperature are quite changeable. It may be warm and pleasant, with a south wind, on one day; the next day a cool, dry wind may blow from the

The irregular rains of eastern United States and Canada

(1) *Kind of weather here*

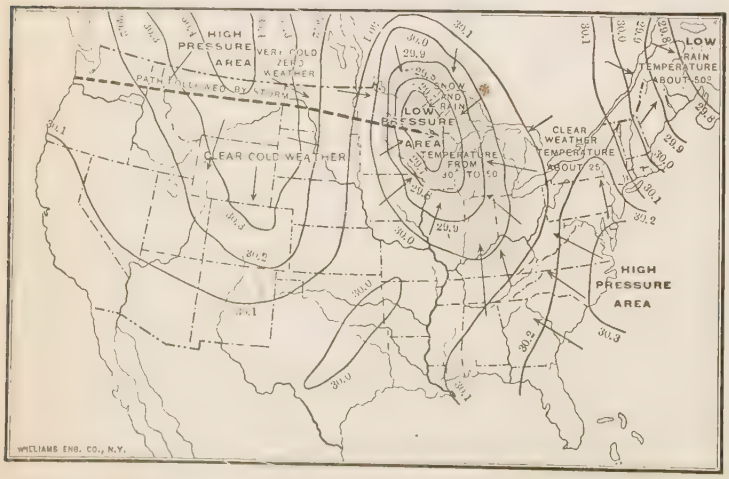


FIG. 278.—Weather map for the day following that of Figure 409. Study this map carefully, and tell how it differs from Figure 409.

MEAN ANNUAL RAINFALL OF THE UNITED STATES
Under 5 inches
5 to 10 inches
10 to 20 inches
20 to 30 inches
30 to 40 inches
40 to 50 inches
50 to 60 inches
Over 60 inches
Scale of Miles
0 50 100 200 300 400 500
Longitude West from Greenwich
DOMINION OF CANADA
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
MEXICO
CUBA
Gulf of St. Lawrence
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
L. Ontario
WASHINGTON
OREGON
CALIFORNIA
IDAHO
MONTANA
WYOMING
NEVADA
UTAH
COLORADO
ARIZONA
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
MINNESOTA
IOWA
MISSOURI
ARKANSAS
LOUISIANA
WISCONSIN
ILLINOIS
MICHIGAN
INDIANA
OHIO
KENTUCKY
TENNESSEE
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
SOUTH CAROLINA
NORTH CAROLINA
VIRGINIA
WEST VIRGINIA
PENNSYLVANIA
NEW YORK
VERMONT
NEW HAMPSHIRE
MAINE
MASS.
CONN.
R.I.
NEW JERSEY
DEL.
MD.
LOWER CALIFORNIA
GULF OF CALIFORNIA
WILLIAMS ENGRAVING CO., N.Y.

FIG. 276.

northwest; after two or three days this may give place to a cloudy sky and rain, brought on by south or east winds; and then fair, cool weather, with northwest winds, may again set in.

(2) *The reason for such weather*

The reason for such changeable weather here is that this region is crossed by the great cyclonic storms already mentioned (p. 193). In them the winds are blowing from all sides toward the center — where the air is lightest — and then rising. As the air rises, the vapor condenses, forming clouds and rain (Fig. 279), as in the belt of calms.

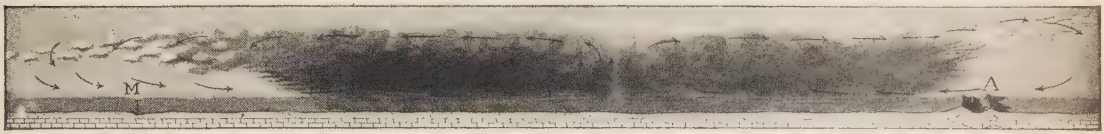


FIG. 279. — A diagram section through a cyclonic storm area. The arrows show the direction of the winds; the shaded area represents clouds and rain. The storm extends from near the Appalachian Mountains (*A*) nearly to the Mississippi River (*M*).

(3) *The movement of the cyclonic storms, and their extent*

Instead of remaining in one place, the cyclonic storms travel steadily onward, usually beginning in the northwest, and *always* passing eastward (Fig. 278). The paths followed by the storm centers generally pass over the Great Lakes, and down the St. Lawrence Valley to the ocean. They move eastward because the prevailing westerlies carry them along.

These storms bring most of the rain that falls in the United States and Canada, east of the Rocky Mountains. The area of country upon which the rain may be falling from the clouds of one of the cyclonic storms is sometimes very great. (See Fig. 279.) Indeed, places fully a thousand miles apart sometimes receive rain at the same time, from the same storm. As the storm moves eastward, it carries rain farther east, and the weather begins to clear on the western side (Figs. 277 and 278).

The vapor that causes the rain in these storms is brought from the Gulf of Mexico and the Atlantic Ocean, being carried by the winds for hundreds of miles, and even into Canada.

Since the storms usually start in the west, and move eastward, it is possible to predict their coming, and therefore to tell in advance what changes are likely to occur in the weather. Such predictions are so important that the United States government employs a large force of men, stationed in different parts of the country, to study the weather. They telegraph their results to the central office at Washington, where a special branch of the government, called the *Weather Bureau*, has been established to have charge of this work.

(4) *Possibility of predicting these storms*

The storm predictions are telegraphed from Washington to all parts of the country, so that one knows what kind of weather to expect a full day before it comes. These predictions are usually printed in the newspapers, as you no doubt know.

Maps, called *weather maps*, also are sent out in great numbers. Figures 277 and 278 are made from such maps. From these maps you can see how the direction of the wind at any one point changes as the storm passes over the country.

By the predictions of the Weather Bureau, farmers and gardeners are warned against damaging frosts, and sailors against severe storms. Hundreds of thousands of dollars are thus saved every year. Especially valuable service has been rendered by the Weather Bureau in predicting the fierce *hurricanes* that start in the West Indies and sometimes do great damage there, as well as on our own coast (Fig. 280). These resemble the cyclonic storms, but are much more destructive. They often pass along our eastern coast, and then eastward out into the Atlantic.

(5) *Value of such warnings*

Since cyclonic storms have so great an influence on our weather, you will find it of interest to study the weather yourself. Watch the changes in wind, temperature, clouds, and rain. You might also examine the weather map and observe the weather that follows, to see how accurately the map predicts the weather.

FIG. 280.— A scene in Galveston, Texas, showing the vast destruction done by a hurricane in 1900, when many of the houses were torn to pieces during the storm.

Review Questions

1. What can you tell about the regular winds of the United States? 2. Of the earth? 3. Name the wind belts of the earth. 4. State some facts about the belt of calms. 5. Of horse latitudes. 6. In what wind belt is northern United States? 7. What is the cause of the irregular winds of eastern United States? 8. What is the relation of winds to rain? 9. Locate the regular rain belts in North America. 10. Where is there especially heavy rainfall in other parts of the earth? 11. Why is the belt of calms a rain belt? 12. State the reason for the desert regions of the earth. 13. Describe the weather in eastern United States. 14. State the reason for this kind of weather. 15. In what direction do the cyclonic storms move, and what is their extent? 16. What about the possibility of predicting these storms? 17. How is that work managed? 18. How are the warnings of value?

Suggestions

1. Estimate the number of barrels of water that falls on an acre of ground, or upon a city block, in one year, where the rainfall is forty inches. 2. Make a drawing to show the direction of the regular winds of the earth. 3. Watch the higher clouds to see in what direction they are moving. 4. Write an account of the changes in weather for five days in succession: the wind direction and force; the clouds; the rain; the temperature. 5. Read the chapter on winds and storms in Tarr's *New Physical Geography*, pp. 255–274. 6. Study Figure 276 and tell what sections have heavy rainfall.

SECTION II. OCEAN MOVEMENTS, AND DISTRIBUTION OF TEMPERATURE

1. Tides

People living upon the seacoast know that the ocean water rises for about six hours, and then slowly falls for the same period. This rising and falling of the water, twice each day, is known as the *tides*.

What the tides are

The tidal wave is only two or three feet high upon islands in the open ocean; but it rises much higher in many bays, because the space that it occupies becomes narrower near the head of a bay. In some places the tide reaches a height of forty or fifty feet.

Height of the tidal wave

The height of tide also varies from day to day; for the moon and the sun, which combine to cause it, do not always work together. At new moon, and at full moon, — when the earth, moon, and sun are nearly in a straight line, — the moon and sun pull together. They then make the tidal wave higher than at the quarter, when the sun is pulling in one direction and the moon in another. The high range of tides at full and new moon are called *spring* tides; those at the quarters, *neap* tides.

In the open ocean the tides are of little or no consequence. But along the coast, where the water rises and falls against the beaches and cliffs, they are of much importance. Where the coast is irregular, the tide is often changed to a *current*, which sometimes moves so rapidly that a sailing vessel cannot make headway against it, but must wait until the tide changes. Such a rapid current is found in one of the entrances to New York harbor, at what is known as Hell Gate, where the channel is narrow and rocky.

Effects of tides

These tidal currents move in one direction during the incoming, or *flood*, tide, and in the opposite direction during the outgoing, or *ebb*, tide. They sometimes drift vessels out of their course and place them in dangerous positions. Many a ship has been wrecked upon a coast where it was drifted by the tidal currents.

The tidal currents often carry mud and sand hither and thither, building sand bars opposite the mouths of harbors. For example, they bring large quantities of sand into the mouth of New York harbor and along the coast farther south. This is one of the reasons why the government is obliged to spend large sums of money every year in improving our harbors.

2. Ocean Currents

If you blow across the surface of a pail of water, you start a small current, or drift, of the water which moves in the direction you blow. Winds that blow over the ocean also drift the water before them. Where the winds blow steadily, as in the trade-wind belts, there is a constant drift of water, pushed along by the prevailing winds. In this way a great system of ocean currents is formed (Fig. 281), which have a great influence on the temperature of the earth.

Main cause of ocean currents

In our study of North America it was necessary several times to refer to two of these currents, the Gulf Stream and the Labrador current. We will now study the ocean currents, on each side of our continent, more fully.

In the Atlantic, where the trade winds blow, the surface water drifts slowly in the direction of these winds; that is, toward the belt of calms from both the northeast and the southeast. The water then moves

The North Atlantic eddy

westward, as a great *Equatorial Drift*, until it reaches the coast of South America, which prevents it from going farther west (Fig. 281). There the drift of water is divided, a part being turned southward, while the greater portion continues toward the northwest.

Atlantic is called the *North Atlantic Eddy* (Figs. 281 and 282).

Coming from the torrid zone, the water in this huge eddy is warm, and in it live countless millions of animals and of floating plants. Among the latter, one of the most common is a seaweed, called *Sargassum*, some of which is thrown into

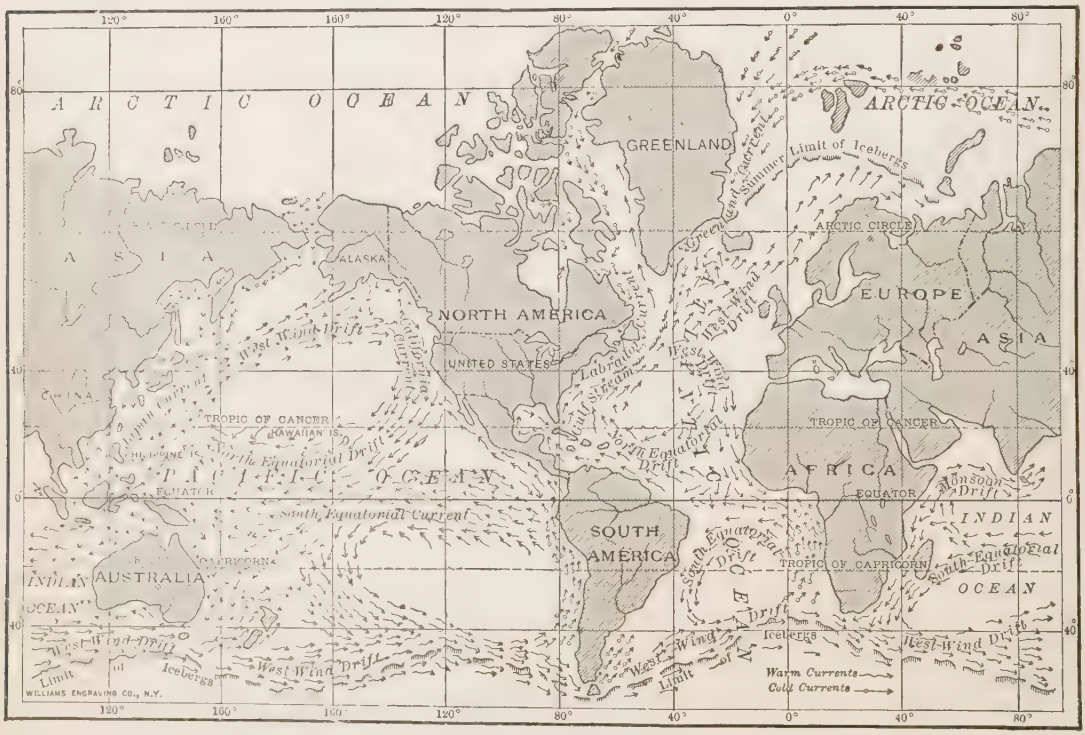


FIG. 281. — A chart showing the principal ocean currents and ocean drifts of the world.

The part that flows northwest is turned toward the right by the effect of the rotation of the earth; and the part that flows into the South Atlantic is turned to the left, also by the effect of rotation. The northern drift keeps turning to the right, and therefore swings out into the Atlantic toward Europe. Continuing to turn, it then passes southward, and finally returns to the trade-wind belt, where it started, having made a complete circle. This circular drift of water in the North

the middle of the great eddy. There it has collected until it now forms a *grassy*, or *Sargasso, sea*, hundreds of miles in extent. Since the Sargasso Sea lies directly between Spain and the West Indies, Columbus had to cross it on his first voyage of discovery; and his sailors, upon entering it, were much alarmed lest they might run aground, or become so entangled in the weed that they could not escape.

The Gulf Stream

A portion of the water in the North Atlantic Eddy enters the Caribbean Sea and then passes into the Gulf of Mexico. Thus a

broad, deep, gently flowing current enters these inclosed seas, which are nearly surrounded by warm, tropical lands. There the water grows even warmer than it was before.

After circling slowly round the Gulf of Mexico, the water escapes between Cuba and Florida. The current then becomes known as the *Gulf Stream* (Fig. 282), because it comes from the *Gulf* of Mexico. Being forced to pass out through so narrow an opening, it is caused to move faster, as water in a hose is made to increase its speed by passing through the nozzle. Measure the distance from Key West to Havana (Fig. 60). In this region the Gulf Stream flows as fast as four or five miles an hour.

This stream also turns to the right, soon leaving the American coast and flowing northeast toward northern Europe. On its way it grows broader and unites with the western part of the great North Atlantic Eddy. In crossing the Atlantic, this great current, or drift, is pushed along by the prevailing westerlies, so that it reaches the shores of northern Europe, and even enters the Arctic Ocean. In this part of its course the current is called the *West Wind Drift*. Some idea of its volume may be gained from the fact that it carries many times as much water as all the rivers of the world together.

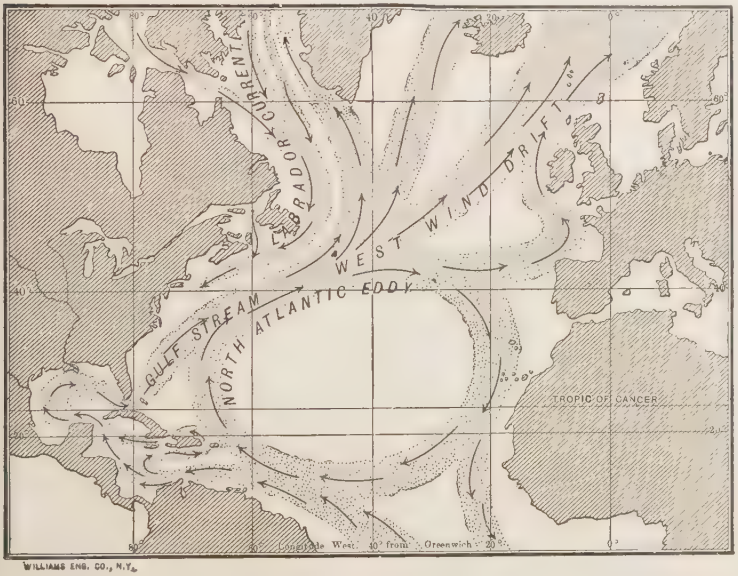


FIG. 282. — A diagram to show the currents of the North Atlantic. In order to illustrate the currents clearly, it has seemed necessary to make them as if they were sharply bounded, like a river in its channel. However, the boundaries of these great currents and drifts are so indefinite that one would not be able to detect the boundaries.

The Labrador current

Some of the water that flows northward in this great drift returns in a cold surface current, called the *Labrador Current*. Starting from among the islands of northern North America, the Labrador Current flows past the coast of Labrador, Newfoundland, Nova Scotia, and New England as far as Cape Cod. It follows our coast very closely, keeping nearer our shore than the Gulf Stream does.

Since there are two currents near together, a cold one from the north and a warm one from the south, a vessel sailing from Boston to Europe must cross both. In winter, during a storm, a ship often becomes covered with snow and ice while in the cold Labrador Current; but soon after entering the warm Gulf Stream this all melts away.

Where the cold and warm currents approach each other, dense fogs are common. The reason for this is that warm, damp winds from

the Gulf Stream are chilled in crossing the Labrador Current. This causes some of the vapor to condense and form fog. The region near the coasts of Nova Scotia and Newfoundland is one of the most foggy regions in the world, and is therefore a dangerous place for vessels.

Currents in the North Pacific

In the Pacific Ocean, as in the Atlantic (Fig. 281), the water is driven before the trade winds. Thus a broad drift is formed, moving westward in the belt of calms. Then a warm current swings to the right past Japan, crossing the ocean toward Alaska. This is called the *Japanese Current.* Continuing to turn to the right, this ocean drift passes southward, forming a great eddy. There is also a cold current from the north, between the Japanese Current and the coast of Asia. It resembles the Labrador Current, but is smaller and not so cold.

From what has been said, we see that the *northeastern* coasts of both North America and Asia are bathed by ocean currents from the cold north. The *northwestern* coasts of Europe and North America, on the other hand, are approached by warm drifts of water from the south.

Eddies of the southern oceans

In the South Atlantic, South Pacific, and Indian oceans, there are eddies similar to those of the North Atlantic and the North Pacific. There is one very important difference, however. In the southern hemisphere the currents are turned to the *left*, instead of the right, by the effect of rotation. Some of the water of these eddies joins the broad *West Wind Drift* of the distant southern ocean; but much of it turns northward until it once more reaches the trade-wind belt (Fig. 281).

Effects of ocean currents on North America

1. Effects of Labrador Current

The cold Labrador Current greatly influences the temperature of the neighboring land; for winds that blow over the Labrador Current are cooled, and carry the chill far inland. This is one of the reasons why the east winds of New England are so cool, and why the New England coast is such an agreeable summer resort.

The Labrador Current bears with it much ice from the Arctic region. Some of this is sea ice, or "floe ice," which has been frozen during the winter; and some of it is in the form of huge icebergs, which have broken off from the Greenland Glaciers. Seals are often seen on the floe ice, and now and then a polar bear, which preys upon the seal (Fig. 283).

FIG. 283. — A polar bear hunting seal on the floe ice that is floating southward in the Labrador Current.

Most of the sea ice melts before reaching Newfoundland; but the icebergs may be carried even farther southward before they melt. Indeed, some of them float even as far south as the paths followed by vessels which cross the Atlantic. Since many of these icebergs are larger than a large building, collision with one means shipwreck; therefore sailors need to use great caution, especially when a ship is in the fog.

While the winds from over the Labrador Current are chilly, those that blow from over the Gulf Stream are warm. They are also damp. During cyclonic storms, as we have seen, winds from the warm waters off our southern coast often carry both warmth and moisture far into the interior of the country. Therefore the Gulf Stream, as well as the Labrador Current, has an important effect on the climate of our Eastern and Central States.

2. Effects of the Gulf Stream

The winds that blow over the warm waters of the North Pacific cause the climate of the Alaskan coast to be far warmer than that of southern Labrador in the same latitude. These west winds also bring an abundance of vapor to the Pacific coast, all the way from California to Alaska.

3. Effects of warm currents in the North Pacific

Where these warm ocean winds blow, the winters are mild and the rain heavy; but the summers are cool, because the ocean water, though warmed, does not become greatly heated. On a globe notice that the State of Washington, with its pleasant climate, is in about the same latitude as the bleak island of Newfoundland, whose shores are bathed by the Labrador Current.

The warm West Wind Drift of the North Atlantic is of special benefit to the Old World. Notice on a map how many large cities of northern Europe are in the same latitude as desolate Labrador. How different these two regions are! One is highly civilized and densely settled; the other is occupied only by scattered, half-civilized tribes. This difference is due mainly to the fact that the prevailing west winds blow over the warm waters of the West Wind Drift.

Effects of currents in other regions

In other parts of the world, also, the ocean currents, and the winds that blow over them, have a great effect on the climate. You will learn about some of these cases when you study about foreign lands.

3. Distribution of Temperature

As a rule, the farther one travels from the equator, the colder it grows; but this is by no means always the case. In some parts of the temperate zone, for instance, it is as hot as in the torrid zone; and in some parts of the torrid zone the climate is as cool as in the temperate zone.

There are several reasons why the climate does not always grow steadily colder as one goes toward the poles. One of these reasons is the presence of highlands. It is a well-known fact that the high mountains have a cold climate, even though in the torrid zone. For the same reason high plateaus may be colder than lowlands even far to the north of them.

Why places in the same latitude may have different temperatures

A second reason is that land becomes warm or cool much more rapidly than water. Land becomes hotter than the ocean in summer, and colder in winter. Thus, in northern Minnesota, far from the ocean, the average temperature in January is below zero; but in July it is about 65° (Figs. 284 and 285). In New York City, on the seacoast, the average in January is about 25° and in July not quite 75°. Thus the difference between the summer and winter months in northern Minnesota is more than 65°; but in New York City it is not over 50°.

The winds are a third cause of differences in temperature. When the prevailing winds are from the ocean, they cause an even, or *equable*, climate, as in California, Oregon, and Washington. Where they blow from the land, on the other hand, they are cool or cold in winter, and warm or hot in summer.

A fourth cause for difference in temperature is the ocean currents, as you have just seen. Give several examples of their influence.

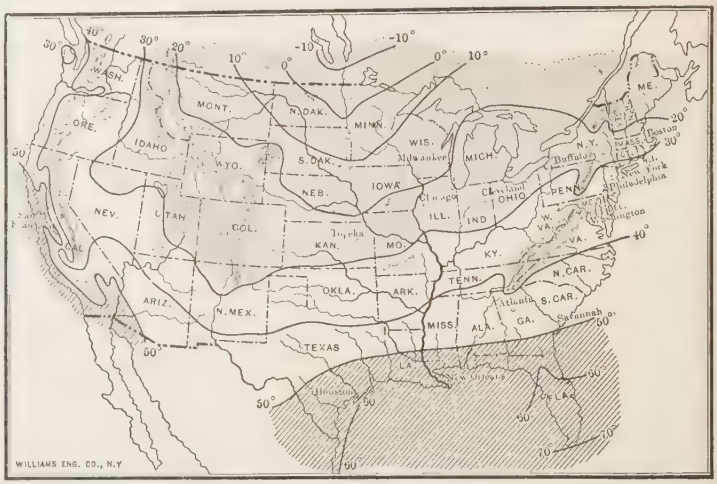


FIG. 284. — Isothermal chart of the United States for January. Why is it colder in the interior than on the east coast? Why so warm on the west coast? Can you notice any influence of mountains?

If, therefore, we wish to draw a line across North America, to connect several points that have the same average temperature for a month, it would need to be a very irregular one. Some parts would reach much farther north than others. Such lines tell so much about temperature, in so little space, that it is customary to make maps to show them, as in Figures 284 and 285. Since these lines connect the places that have the same temperature, they are called *isothermal lines*, or *isotherms* (*iso* means equal; *therm*, heat). A map or *chart*, showing the isotherms, is called an *isothermal chart* (Figs. 284 and 285).

Meaning of isothermal lines, and their value

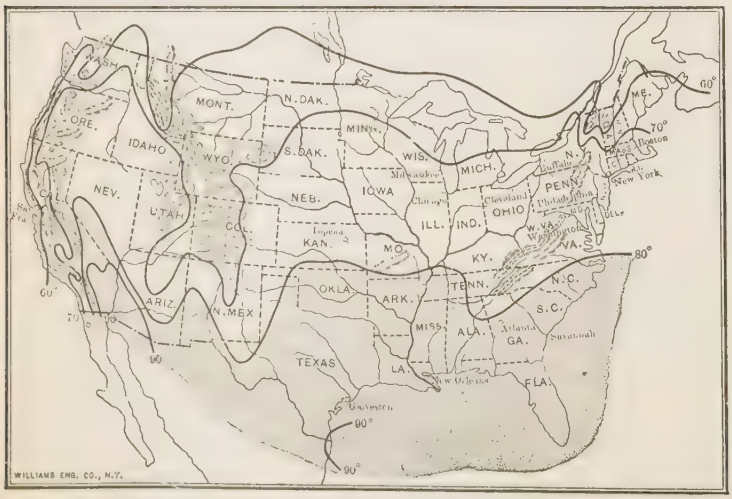


FIG. 285. — Isothermal chart of the United States for July. Why is it cooler on the west coast than on the east coast?

Trace several of the isotherms across the United States and explain why they bend as they do. You will notice that the isotherms on the western coast extend north and south, almost parallel to the coast. This is because the winds reach the coast after passing over the warm Pacific Ocean.

Differences between January and July isotherms on land, with reasons

There is only about 20° difference between the winter and summer temperatures on the western coast; but on the eastern coast of the United States the difference between summer and winter is much greater. Here, in the East, some of the winds are from the ocean; but still more are from the land, which is cold in winter and warm in summer.

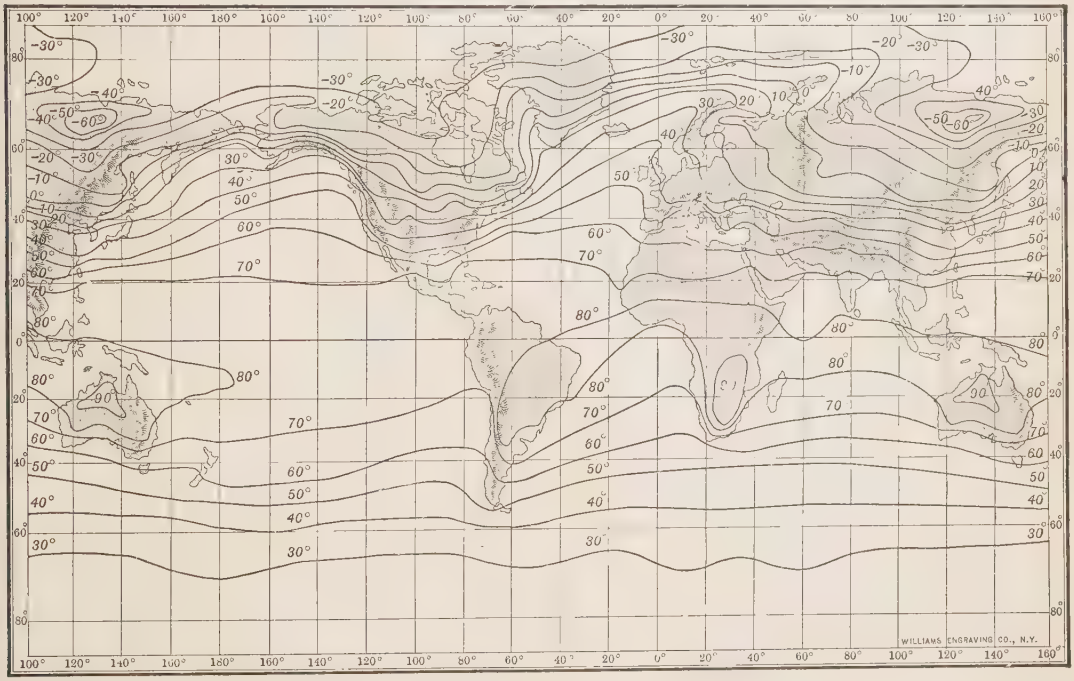


FIG. 286. — An isothermal chart of the world for January.

Figures 286 and 287 show similar isotherms for the whole world. Observe how these bend where they cross high mountain chains. You will notice that the winter isotherms of the north temperate zone bend toward the equator over the continents. This is because the land is colder than the ocean. During the summer, on the contrary, the isotherms curve away from the equator in crossing the continents. On what continent are these bends best seen? Why? What effect of the West Wind Drift do you find in Figure 286?

Review Questions

1. What are the tides? 2. Give some facts about their height. 3. About their effect. 4. Explain the main cause of ocean currents. 5. Describe the North Atlantic Eddy. 6. The Gulf Stream. 7. The Labrador Current. 8. How does the Labrador Current cause fogs? 9. Describe the currents of the North Pacific. 10. The eddies of the southern oceans. 11. Explain the effects of the Labrador Current on the climate of North America. 12. What are the effects of the Gulf Stream? 13. The warm currents in the North Pacific? 14. State the effects of ocean currents on western Europe. 15. Give four reasons why places in the same latitude may have different temperatures. 16. What are isothermal lines and what is their value? 17. What are isothermal charts? 18. Trace some of the isothermal lines across the United States for January and for July, and explain their differences.

Suggestions

1. If your home is upon the seacoast, find out something about tides there. 2. What course might a vessel take in order to be carried from Europe to America, and back again, by ocean currents? 3. How do vessels try to avoid running into one another in dense fogs?

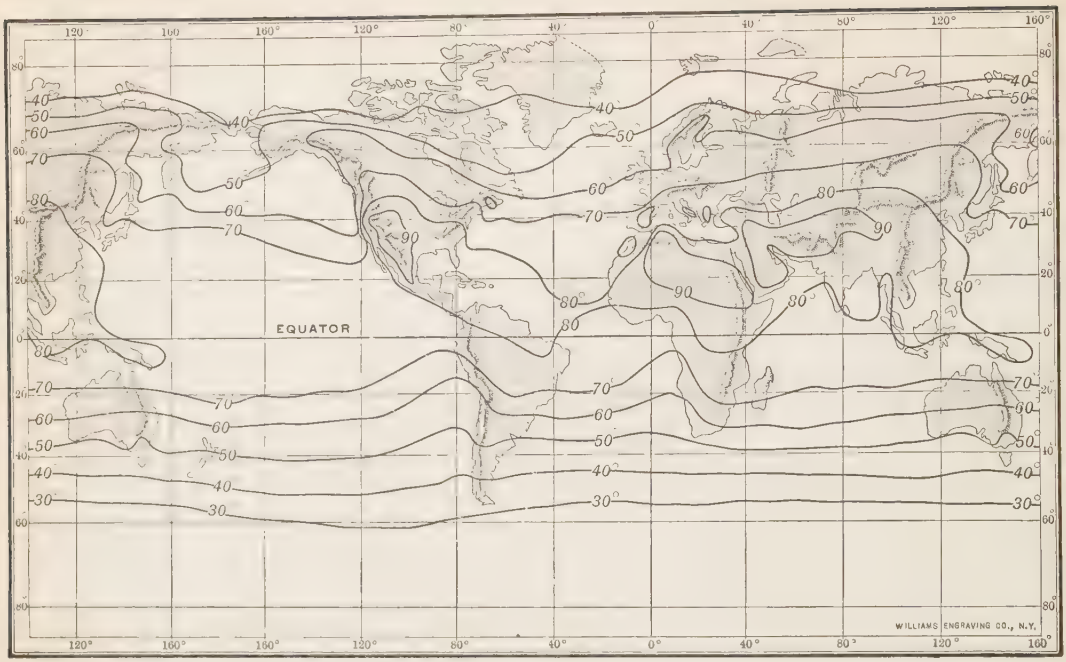


FIG. 287. — An isothermal chart of the world for July.

SECTION III. THE RACES OF MANKIND

The principal divisions of mankind

In some countries the people are white; in others, they are yellow, or black, or brown, or red. There are many different races of men, but they may all be included in four great groups. These are (1) the *white*, or *Caucasian* people; (2) the *black*, or *Ethiopian* races; (3) the *yellow*, or *Mongolian* people; (4) the *red men*, or *American Indians*. These groups comprise about one and one half billion people.

1. Ethiopians

About one hundred and seventy-five millions of the inhabitants of the earth are negroes (Figs. 288 and 289), or *Ethiopians*. This is often called the *black race*. There are many divisions of this group, but they all have a deep brown or black skin; short black, woolly hair; broad, flat noses; and prominent cheek bones.

The original home of the Ethiopians is Africa, south of the Sahara Desert (Fig. 288); but many have been carried to other lands as slaves, and have there mingled more or less with other races. The negroes in Africa are still either savages or barbarians of low type; but in many other lands they have advanced to a civilized state.

2. American Indians

A second great division of the human race is that of the *American Indians*, often called the *red race*. It is the smallest of the four groups, and includes only about twenty-two millions. These people resemble the Mongolians in some respects. They were in possession of both North and South America when Columbus discovered the New World, and many of them still live on these continents (Fig. 288). The Indians have a copper-colored skin, prominent cheek bones, black eyes, and long, coarse, black hair (Figs. 291, 292).

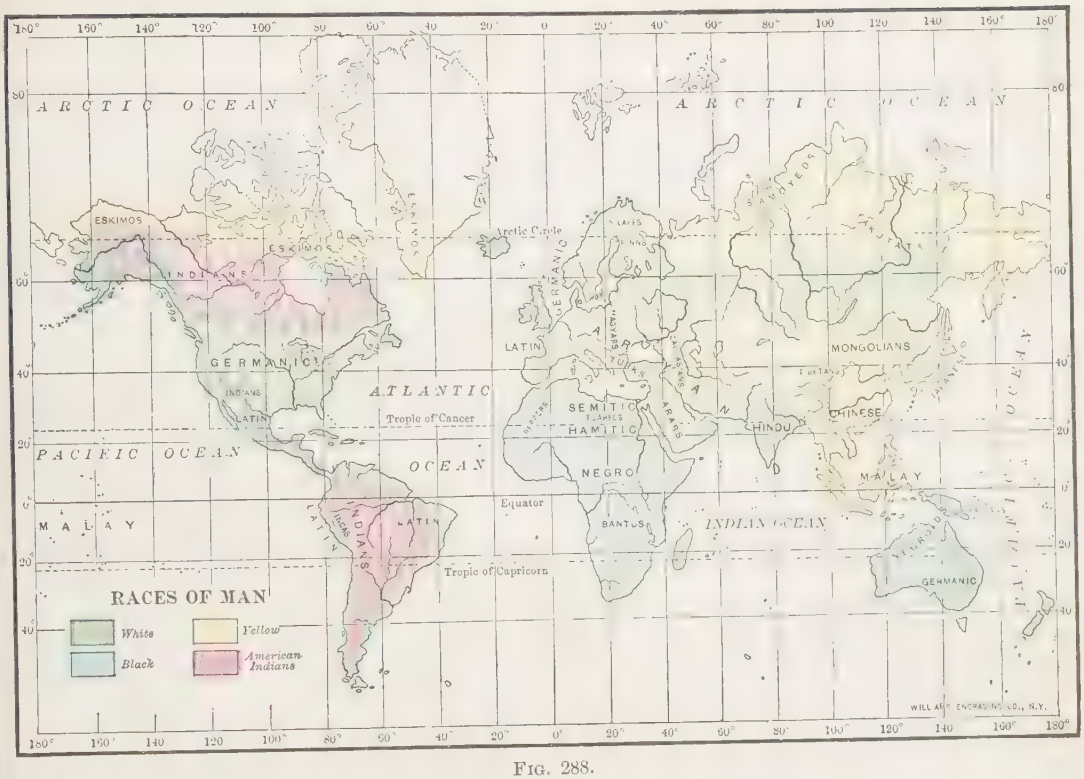


FIG. 288.

The third division, the *Mongolian*, or *yellow race*, numbers about five hundred and forty million. They live mainly in Asia, though some, as the Finns, Lapps, and Turks, have migrated to Europe (Fig. 288).

3. Mongolians

The Chinese and Japanese (Fig. 290) are the best examples of Mongolians. They have a yellowish, or in some cases even a white, skin, prominent cheek bones, small slanting eyes, a small nose, and long, coarse, black hair. The Malays, who live in southern Asia, and in the islands of the Pacific and Indian oceans, are a division of the yellow race. Most of the Mongolians are highly civilized, although their kind of civilization is different from that of the white race.

The largest and most highly civilized of the four divisions of mankind is the *white*, or *Caucasian race*, which numbers about seven hundred and seventy millions. They are also the most widely scattered over the earth. Their original home is not known, but now they are found in great numbers in all the continents (Fig. 288).

4. Caucasians

There are two main branches of the Caucasian race: (1) the fair type, with light skin, light brown, flaxen, or red hair, and blue or gray eyes; (2) the dark type, with fair skin, dark brown or black hair, often wavy or curly, and black eyes.

Extent to which the Caucasians are leaders, with reasons

The leaders among these four great divisions are the whites. They have learned the use of ships in exploring distant lands, and have spread with great rapidity. They have con-

quered the weaker peoples and have taken their lands from them, so that they now rule nearly the whole world (Fig. 288). The only race that has held out against them is the Mongolian.

FIG. 289. — A Zulu, one of the tribes of African negroes.

Review Questions

1. Name the four divisions of mankind. 2. Tell what you can about the Ethiopians. 3. Do the same for the American Indians. 4. Mongolians. 5. Caucasians. 6. To what extent are the Caucasians leaders among these races? Give reasons.

Suggestions

1. How many of the four divisions of mankind are represented in your own neighborhood? 2. Collect pictures for the school, showing the kinds of dress worn by the different races of mankind. 3. Collect pictures of the houses in which such people live.

FIG. 290. — Japanese women, belonging to the Mongolian, or yellow race.

Photograph from Bureau of Ethnology.

FIG. 292. — A North American Indian, one of the red race.

Fig. 291. — An Indian Chief.

SOUTH AMERICA
Scale of Miles
0 200 400 600 800 1000
Cities with over 500,000 ..... Rio de Janeiro
Cities with 200,000 to 500,000 ..... Santiago
Cities with 100,000 to 200,000 ..... Valparaiso
Smaller Places ..... Santa Cruz
Capitals with less than 100,000 ..... ASUNCION
Capitals ⊙ Other Places ∘
CARIBBEAN SEA
CENTRAL AMERICA
LESSER ANTILLES
MARTINIQUE (FR.)
SANTA LUCIA (BR.)
BARBADOS (BR.)
Port of Spain
TRINIDAD (BR.)
Orinoco Delta
GEORGETOWN
PARAMARIBO
CAYENNE
FRENCH
VENEZUELA
COLOMBIA
GUIANA
SIERRA PACARAIMA
SIERRA PARIMA
Bogota
Buena Ventura
MAPELO I.
Esmeraldas
Iparra
QUITO
V. Antisana
V. Cotopaxi
Chimborazo
ECUADOR
Lima
PERU
BRAZIL
BOLIVIA
Matto Grosso
Cuyaba
Plateau of Matto Grosso
Goyaz
Santarem
Para
Belem
Maranhao (S. Luis)
Granja
Ceara
S. Francisco
Cape San Roque
Natal
Parahiba
Pernambuco (Recife)
Joazeiro
Alagoas
Bahia
Palma
Januaria
SERRA
Porto Seguero
AIMORES
Diamantina
Caravellas
Bagagem
Victoria
Ouro Preto
Campos
Petropoli
Nictheroy
Cape Frio
Campinas
Sao Paulo
Santos
Rio de Janeiro
Concepcion
PARAGUAY
Villa Pilar
Paranagua
Itajahy
Desterro
S. CATHARINA I.
Cruz Alta
Porto Alegre
URUGUAY
Colonia
Chuy
Montevideo
Buenos Aires
San Antonio
C. Corrientes
Blanca Bay
S. Matias Gulf
Puerto Madrin
Rawson
C. of Two Bays
Gulf of St. George
C. Tres Puntas
Santa Cruz
FALKLAND ISLANDS (TO GREAT BRITAIN)
WEST I.
Port Stanley
EAST I.
Strait of Magellan
TIERRA DEL FUEGO
STATEN I.
Cape Horn
SOUTH GEORGIA (BR.)
SANDWICH IS.
TROPIC OF CAPRICORN
ST. FELIX
ST. AMBROSE
JUAN FERNANDEZ IS.
MAS A FUERA I.
MAS A TIERRA I.
Mt. Aconcagua
Quillota
Valparaiso
Santiago
San Carlos
Angol
Temuco
Valdivia
Osorno
Castro
CHILOE I.
CAMPANA I.
WELLINGTON I.
HANOVER I.
QUEEN ADELAIDE ARCH.
Strait of Magellan
DESOLATION I.
SANTA INEZ I.
ATLANTIC OCEAN
PACIFIC OCEAN
70° Longitude 60° West 50° from 40° Greenwich 30° 20° 10°
WILLIAMS ENGRAVING CO., N.Y.

FIG. 293.

FIG. 294. — Relief map of South America.

PART III. SOUTH AMERICA

Map study

1. Compare South America with North America in shape. 2. What great mountain range extends along the western side? 3. Name the countries of South America. 4. Which one is largest? 5. Which is second in size? 6. What is the coldest part of South America? 7. Which part of the continent lies in the tropical zone? 8. Which part has a climate very much like our own? 9. Name the three principal rivers. Locate each. 10. Locate Cape Horn, Cape San Roque, and Strait of Magellan.

SECTION I. GENERAL FACTS

Area and population

South America is nearly as large as North America, and has been known quite as long; for it was discovered by Columbus on his third voyage. On the map, find the country named after him. Yet South America has only about one third as many inhabitants as North America.

Why more rapid settlement might have been expected

There was no way of knowing, at first, which of the two continents in the New World would be settled the more rapidly. Yet there are several reasons why South America might have been expected to develop as rapidly as North America.

FIG. 295. — Find extensive regions where there are very few inhabitants. In what parts is settlement fairly dense?

1. Resemblance to North America

One reason is that the two continents are similar in several important respects. (1) They have the same general shape. (2) Each has its highest mountains on the western side. Find the three great mountainous regions, or highlands, of South America. Locate them on Figure 293. What highlands in North America correspond to these? (3) Each has broad, fertile plains. The *pampas* and *llanos* are treeless plains suited to grazing; but the

PHYSICAL MAP OF
SOUTH AMERICA
Scale of Miles
0 200 400 600 800 1000
KEY
Over 6,500 ft.
From 1,650 to 6,500 ft.
From 650 to 1,650 ft.
From 0 to 650 ft.
From 0 to 6,500 ft.
From 6,500 to 13,000 ft.
Below 13,000 ft.
Sea Level
CARIBBEAN SEA
MARTINIQUE
BARBADOS
CURACAO
LESSER ANTILLES
TRINIDAD
Pt. Gallinas
Gulf of Darien
ISTHMUS OF PANAMA
Gulf of Panama
Vol. Tolima
Vol. Chimborazo
Gulf of Guayaquil
C. Blanco
Parina Pt.
LLANOS
GUIANA HIGHLANDS
SIERRA PACARAIMA
TUMAC-HUMAC MTS.
Mouths of the Amazon River
MARAJO
EQUATOR
SELVAS
ANDES
PACIFIC OCEAN
ATLANTIC OCEAN
C. S. Roque
C. Branco
PLATEAU OF MATTO GROSSO
BRAZILIAN HIGHLANDS
SERRA DO MAR
C. Frio
Mt. Sorata
Mt. Illimani
Lake Titicaca
Sahama Vol.
PLATEAU OF BOLIVIA
CHACO
TROPIC OF CAPRICORN
Atacama Vol.
Copiapo Vol.
SALINAS
ST. FELIX I.
ST. AMBROSE I.
Mt. Aconcagua
MAS A FUERA I.
JUAN FERNANDEZ I.
PAMPAS
Blanca Bay
San Matias Gulf
CHILOE I.
CHONOS ARCHIPELAGO
Gulf of St. George
WELLINGTON ISLANDS
PATAGONIA
FALKLAND IS.
Strait of Magellan
TIERRA DEL FUEGO
Cape Horn
WILLIAMS ENGRAVING CO., N.Y.
Longitude West from Greenwich

FIG. 296.

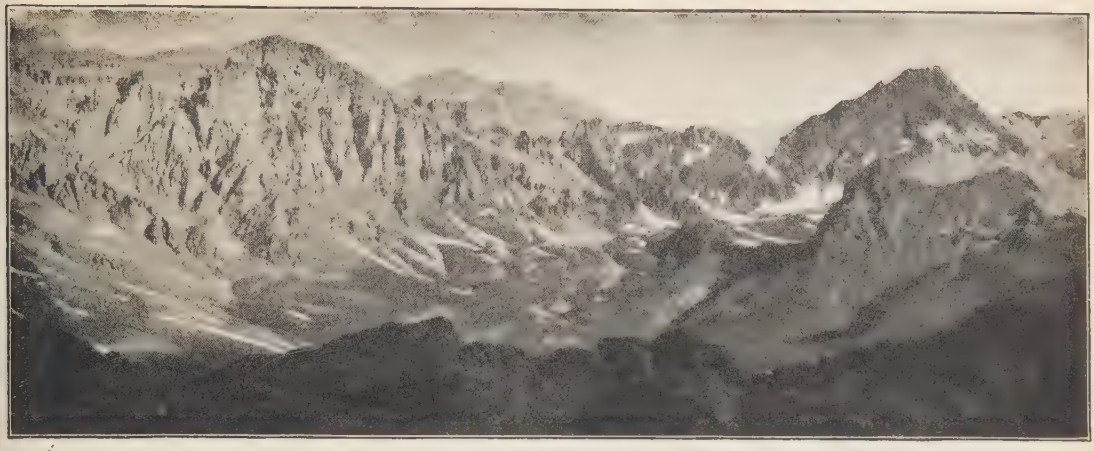


FIG. 297. — A view in the lofty Andes Mountains of Chile. Here the surface is very rough and rocky, and snow remains all the year round.

selvas of the Amazon Valley are a region of dense forests. Find their names on Figure 296. (4) In each there are large, navigable rivers reaching into the very heart of the continent. Name the three principal rivers of South America and trace their courses.

2. Advantages over North America

In some respects South America has important advantages over North America. No part extends into the frigid zone; but a large part of Canada, the largest country in North America, is so cold that no crops can be raised there.

Second, the damp winds, which blow mainly from the Atlantic, bring plenty of rain to most of South America (Fig. 298). A narrow strip on the western side of the Andes Mountains, and a part of Argentina, where west winds blow, are the only arid and desert sections. Locate these deserts on Figure 298. This is very different from North America, where, as you remember, a large portion of the West is arid.

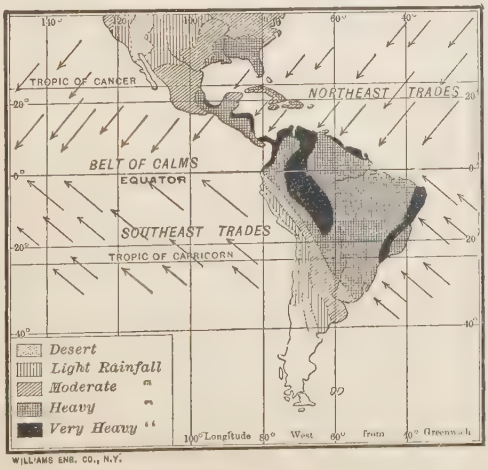


FIG. 298. — A figure showing rainfall in South America. In what parts is there heavy rainfall? In what parts are there deserts? Is the rainfall heavy or light on the coasts against which the winds blow? What about the rainfall in the belt of calms?

In addition, large quantities of gold and silver were discovered in South America much earlier than in North America. Adventurers in search of the precious metals thronged into South America hundreds of years before the rush for California gold took place. That gave an early start to immigration.

Why settlement has not been rapid

1. Because of the climate

In spite of these facts, the settlement of South America has been very slow, compared with that of North America.

One of the most important reasons is the climate. While no part of the con-

tinent lies in the very cold belt, much more than half of it is in the torrid zone (Fig. 293). Note where the equator and the Tropic of Capricorn cross the continent. What does the latter line show? Where is the Tropic of Cancer (Fig. 2)?

Although vegetation thrives in the torrid zone, it is not a good region for men to live in. The dampness and heat make it difficult to work, and even cause serious sickness. There is, however, little need for work, for it is easy to get food, clothing, and shelter where vegetation is so abundant. This tends to make men lazy. Such a climate is certainly not attractive, especially to people from countries, such as those of Europe, which have a temperate climate; yet European countries are the ones from which immigrants would have come.

The most prosperous countries in the world are in the temperate zone, but only the smaller part of South America lies in that zone, as you can see (Fig. 293). What countries are included in it? Most of the people of South America live either in these countries or else on the plateaus and mountain slopes, which, as you know, have a cool climate, even though in the tropical zone.

A second reason for the slow settlement of South America is the lack of coal.

2. Because of the lack of coal

Some coal is found there, it is true, but very little is mined. The importance of coal for manufacturing has already been seen in our study of the United States. Without that mineral our country could not have developed so many industries, nor have attracted such great numbers of settlers.

Most of the coast of South America is very straight, so that there are few bays and harbors. Compare North and South America in this respect.

3. Because of the lack of harbors

The western coast is especially straight, and for long distances there are no harbors at all. Moreover, the lofty Andes rise, like a great wall, almost out of the ocean, so that it is very difficult to carry goods from the western seacoast to the interior (Fig. 297).

The scarcity of good harbors, as well as the lack of coal, is unfavorable to manufacturing and commerce. Yet these are two occupations that attract and support large numbers of people.

A fourth reason for the small population of South America is the character of the people living there.

4. Because of the kind of people there

The whole continent was once owned by Spain and Portugal, and the languages of these countries are still spoken there, Portuguese being used only in Brazil. Like Mexico and Central America, the South American countries rebelled, and now all but the Guianas are independent republics.

Some of the people are Spanish or Portuguese, but far more are negroes, Indians, and half-breeds. More than half of all the South American people can neither read nor write. In some of the countries, too, the people have been very quarrelsome, and have spent much of their time in fighting, instead of developing industries. Because ignorance has been so general, and revolutions so numerous, Europeans have not been attracted to South America as they have to North America. Of late, however, there has been great improvement, and some of the countries have developed rapidly.

FIG. 299.—Some of the South American animals.

Plant and animal life

1. Plant life

In the warm, rainy belt the climate is so hot and damp that there is luxuriant plant life (Fig. 307). The vast jungles of the Amazon are so dense that travel through them is very difficult. In fact, immense areas have never yet been explored. In the desert of the west coast, on the other hand, plant life is very scanty (Fig. 314). There are some parts — for instance, the Desert of Atacama in northern Chile — where there is almost no life of any kind.

FIG. 300. — The South American llama.

FIG. 301. — Savage Indians who live in the tropical forest of eastern Peru, east of the Andes.

In the south temperate zone, and on the cooler mountain slopes of the torrid zone, the land is forest-covered; but these forests are much more open than the tropical jungle. The extreme southern part of the continent has a climate so cold that the plants become dwarfed, as in northern Canada.

2. Animal life

(1) *In the jungle*

In the tropical forest are many insects and beautiful birds. Among the larger animals are the fruit-eating monkey, the fierce jaguar (Fig. 299). which preys upon other animals; and the sloth (Fig. 299), a creature that sleeps hanging, back downward, from the branches of the trees. There are also many reptiles, including serpents and the iguana, a tree lizard that grows to a length of several feet. Some of the serpents are small and poisonous; others, like the boa constrictor (Fig. 299), are large, and powerful enough to crush a deer in their coils.

The many beautiful butterflies and the ants are especially interesting. The ants live in colonies, and build houses of earth. There are animals that live on the white ants, one of the most peculiar being the ant-eater (Fig. 299), With its long claws it digs the ants from their earthy or woody dwelling places, using its sharp-pointed snout and long tongue in finding its food.

The tapir (Fig. 299), an animal five or six feet long, wanders about at night, feeding along

ıe water courses. The armadillo (Fig. 299), a ırrowing animal covered with an armor, rolls itself into a ball when attacked by an enemy, thus protecting its soft under parts. In the river waters and swamps are fishes, turtles, and alligators (Fig. 299). The fish and the turtle eggs are among the chief foods of the forest Indians. The manatee (Fig. 299), or sea cow, lives in both fresh and salt water, and goes up the Amazon even as far as Ecuador.

Fig. 302. — An Inca Indian of Peru.

On the grassy plains herds of deer roam about, and also the rhea (Fig. 299), — often called the American ostrich, — one of the few large running birds. It lives on the open pampas, as in Patagonia, where herds of guanaco, a kind of wild llama, also are found.

(2) *On the plains and among the mountains*

Among the crags and peaks of the Andes dwells the condor (Fig. 299), the largest of flying birds, — so large that it kills and carries off small deer. In the mountain valleys live the llama (Figs. 299, 300, 311) and the alpaca. Like other mountain animals, the llama is so sure-footed on the rocks that it is of great use as a beast of burden; and the cold climate causes it to have a thick coat of wool which is of value to man. Because of its usefulness the llama is sometimes called the American camel, but it is much smaller than a true camel.

The native inhabitants

When South America was discovered by Columbus, it was inhabited only by red men. Many of these were savages; and even to-day some of the forest Indians are savages (Fig. 301) living almost solely upon fish, game, and the abundant fruits. It is unsafe for white men to go among some of them, and indeed there are forest tribes that are still cannibals.

Among the Andes, especially in Peru, Bolivia, and Ecuador, the Spanish explorers found tribes of Indians, called *Incas* (Fig. 302), who were far more advanced than their neighbors.

The Incas tilled the soil by the aid of irrigation, cultivating the potato, corn, and Peruvian cotton, all of which they had improved from wild plants. They had the llama and alpaca as domestic animals, obtaining wool from them and using them as work animals. They organized armies, built roads (Fig. 303), and had a rude postal and express system by swift runners. Although they had not invented writing, they kept records by means of knotted strings. Their empire extended for more than two thousand miles along the Andes, and from the Pacific coast to the trackless forests of the Amazon; and they were governed by a powerful chief whose capital was Cuzco in Peru.

Fig. 303. — A stone bridge in Bolivia, built by the Incas before South America was discovered by white men.

SECTION II. ARGENTINA, URUGUAY, AND PARAGUAY

From what has been said you can, perhaps, pick out the most progressive countries of South America. They lie in the temperate zone.

Comparison of Argentina with United States

Argentina is the leading country, and the one that most resembles our own. It is only about one third as large as the United States, but it has the same variety of climate from east to west. There is plenty of rain in the northeast, while in the interior there are broad stretches of arid plains. From north to south there is a great difference in temperature, even greater than in our country. As in the United States, much of Argentina consists of plains, with lofty mountains in the west. Like our own country, also, Argentina has a good government, abundant resources, and progressive people.

Fig. 304. — A view on a cattle ranch in the pampas of Argentina.

Agriculture

Argentina is one of the greatest wheat-producing countries of the world; other grains are common. Much fruit also is grown, especially grapes, from which wine and raisins are made. In the north the climate is so warm that tobacco, sugar cane, cotton, and tropical fruits are raised. The extreme south is too cold for farming; but sheep raising is carried on even in Patagonia and on the stormy islands beyond the Straits of Magellan.

On the treeless plains of the interior, called *pampas* (Fig. 304), there is excellent grass, and one of the chief industries there is the raising of cattle and sheep. This reminds us of the arid parts of western United States. Argentina is also one of the leading cattle and sheep countries of the world, having many millions of sheep.

There are extensive forests in the north, and in the mountains. There is therefore some lumbering. Argentina is not an important mining region, though some gold, silver, iron, coal, and petroleum are found.

Lumbering and mining

Manufacturing and commerce

In the large cities there is much manufacturing, chiefly of the raw products raised in the country. The leading kinds are dairying and the manufacture of wool, flour, sugar, wine, leather, and cotton. A large part of the raw products, however, is sent abroad, especially wool, hides, wheat, corn, and meat. Machinery and many other manufactured articles are imported.

In a country so progressive as this, ere must be means of ready transportion. The broad Parana River, which npties into the Plata Estuary, forms n important water way to the interior; nd railways cross the well-settled porons of the country, connecting all the nportant cities. In fact, there are nore railways in Argentina than in ny other South American country. here is now a railway from Buenos ires, westward across the Andes to alparaiso.

FIG. 305. — A ranch house on a cattle ranch in Uruguay.

Paraguay and Uruguay have nearly ne same products as Argentina. Name these products. Both countries are especially noted for neir cattle and sheep. Among the rincipal exports are products obtained rom the cattle and sheep, such as dried eef, corned beef, hides, tallow, and ool. Paraguay is one of the two countries of South America without a seacoast. Name the other. It has a much warmer climate than Uruguay, and therefore has a number of tropical products including rubber, dyewoods, and valuable timber from the forests. Another product is *yerba-mate*, or *Paraguay tea*, which is quite different from our tea. It is much used in South America, where its value was learned from the red men.

araguay nd Uruguay

BUENOS AIRES, the capital of Argentina at the mouth of the Plata River, is the largest city in South America, having more than a million inhabitants. MONTEVIDEO, the capital of Uruguay, is larger than Montreal.

Principal cities

Both of these cities are important seaports, exporting the products of the region to Europe and North America. Buenos Aires is a busy, modern city, with many fine buildings, quite like some of our best cities. It has much manufacturing as well as commerce.

Locate ASUNCION, the capital of Paraguay. Also LA PLATA, CORDOBA, and ROSARIO, which are among the leading cities of Argentina.

SECTION III. BRAZIL

Brazil is the one country in South merica that formerly belonged to Portugal, and the Portuguese language is till spoken there.

It is a much larger country than Argentina, or any other country of South America, and is even larger than the United States. Yet it has less than one fourth as many inhabitants as our country, and of these, less than one half are white men.

Area and population

Eastern Brazil is a highland region;

but the northern third of the country is mainly a vast level plain, drained by the Amazon River. The rainfall in the Amazon Valley is so heavy, and the slope of the land so gentle, that the river and its larger tributaries are swollen to great breadth. At times of flood these rivers overflow the surrounding country and change it to an immense swamp crossed by many channels. In some places the Amazon is several miles wide, and resembles a lake rather than a river.

The Amazon Valley

The Amazon is navigable for steamboats nearly to the base of the Andes, a distance of twenty-two hundred miles from the seacoast. Some of the tributaries also are navigable. Along this water way there are a few small settlements, such as MAÑAOS, which are reached by ocean steamers; but away from the river there is nothing but an almost unknown wilderness. There is not a single large city in this entire valley. How different it is from the valley of the Mississippi!

FIG 307. — Cutting a road in the dense tropical forest of the Amazon Valley. Notice the wavy vines hanging from the trees.

Ratzel's *History of Mankind.*

FIG. 306. — Savage Indians that live in the interior of Brazil, far away from the region where white men live.

A large part of Brazil, including much of the valley of the Amazon and its tributaries, is covered with dense tropical forests. The trees and undergrowth are so dense that one cannot pass through them without first cutting a path (Fig. 307).

The tropical forest

1. Its appearance

In these woods an occasional giant tree reaches to a height of from one hundred and fifty to two hundred feet. The lower limbs may be as much as a hundred feet from the ground. Between these giant trees are smaller ones struggling to rise out of the somber shade into the sunlight. There are also many shrubs, bushes, ferns, and vines, the latter twining about the tree trunks or hanging from their lower limbs (Fig. 307).

The woods present much the same appearance throughout the year. There is no time

hen all the trees send forth their leaves and ossoms; nor is there a time when all the aves change color and fall to the ground. me of the trees blossom throughout the ar; others have their blossoms at regular asons; thus flowers and fruits may be seen all times of the year.

Some of the trees of the forest produce fruits and nuts, others valuable timber or dyewoods. In fact, the word *Brazil* comes from the name of a dyewood found in the Amazon forests.

Its products

) Fruits, nuts, ewoods, and nilla

nother valuable plant is the vanilla, hose beans are used in making perumes and flavoring extracts. Many of e Indians near the rivers make long urneys into the forest to collect the roducts, both for their own use and to ip down the Amazon.

The Indians still cultivate the *mandioca*, which was one of their principal foods when white men appeared. The root of this lant is somewhat like a long sweet poato, and it is made into a meal, called *arina*. Mandioca is used by the people uch as wheat is by those who live in emperate climates. It is from this lant that tapioca is made. Paraguay ea is also obtained in the Brazilian orest, and Brazil produces far more f this than Paraguay.

) Mandioca nd tea

The natives are also engaged in obaining *rubber*, a product of great value because of its many uses. When gathering rubber, the atives camp in the forests in lightly uilt huts, from which paths lead hrough the dense undergrowth to the ubber trees. Holes are made in the rees, so that the sap oozes forth, when is collected in bamboo dishes. It is hen smoked and dried before being shipped down the river to PARA. Find this city on the map (Fig. 293).

) Rubber

Besides the rubber trees in the forest, there are many rubber plantations in which the rubber tree is carefully planted and cultivated. Rubber ranks second among the exports from Brazil, and one of the principal markets for it is the United States. What are some of its important uses? Why should the invention of bicycles and automobiles have an important influence on the production and value of rubber?

Most of the inhabitants of Brazil live in the eastern and southern parts. Much of this section is a plateau, crossed by low mountains. Because of the elevation the temperature is much more agreeable than in the Amazon Valley; and, as you will see from the map, the very southern portion lies in the temperate zone.

The more settled part and its products

The chief industry is farming and the raising of cattle. Besides grain, the crops of the warm temperate and tropical climates thrive. Among these are tropical fruits, cotton, corn, sugar cane, tobacco, cocoa, and coffee. The last is the most important and much is sent to the United States.

1. Agriculture

The coffee tree is a native of Abyssinia in Africa. It was introduced into Brazil long ago, and has proved so valuable that Brazil now produces more than one half of all the coffee used in the world. It is cultivated all the way from southern Brazil to the Amazon, and there are fully five hundred million coffee trees in the country. They grow best at elevations of from fifteen hundred to forty-five hundred feet above sea level, and are very common on the highlands of eastern Brazil. Each tree produces from thirty to forty pounds of coffee a year. Between April and September the berries are picked, dried in the sun, and hulled. After being sorted, the coffee is shipped in bags.

Valuable minerals, including gold, diamonds, and some coal and iron, are found in the plateau region of Brazil. Indeed, this is one of the principal diamond-producing countries in the world.

2. Mining and manufacturing

Manufacturing has begun to be important. Cotton manufacturing is rapidly increasing, and there are, also, woolen mills, flour mills, and other manufacturing plants, chiefly in southern Brazil. Why should this be the most progressive part of the country?

FIG. 308. — A view of the city and harbor of Rio de Janeiro.

The chief cities are on the coast, by far the largest being RIO DE JANEIRO, the capital (Fig. 308). It is the second city in size in South America. Which is the first? It has a splendid harbor, and is a very busy seaport. A rich farming country surrounds it, dotted with coffee plantations.

Centers of commerce

BAHIA and PERNAMBUCO, farther north on the coast, are second and third in size. The fourth is SAO PAULO, which lies to the southwest, back from the coast. SANTOS is its seaport, noted for its export of coffee.

SECTION IV. THE GUIANAS AND VENEZUELA

North of Brazil are three small countries, the only portions of the South American continent now under control of European nations. One belongs to Great Britain, one to Holland, and one to France. They are known as *British Guiana*, *Dutch Guiana*, or *Surinam*, and *French Guiana*. Find the capital of each.

The Guianas

In these countries a large part of the surface is still a forest wilderness, inhabited chiefly by Indians. This tropical forest, like that of the Amazon, supplies rubber and valuable timber; but its resources are only slightly developed. Near the coast there is a strip of cultivated land on which sugar cane, bananas, cotton, and a few other products are raised. Of late, especially in Dutch Guiana, attention has been turned to the production of cocoa and coffee. Some gold is found in each of the Guianas. The Guianas have but one short railway, and in most sections there are almost no roads.

The name Venezuela, which means "little Venice," was given in 1499 because the explorers found an Indian village built in the water along the shore of Lake Maracaibo.

Venezuela
1. Character of country, and products

The Andes cross the western part of Venezuela, while the Guiana Highlands extends into the eastern part. Between these two highlands are the broad plains of the Orinoco Valley.

Some of these plains, the treeless, grass-covered *llanos*, are occupied by great herds of cattle, as are the pampas of Argentina. There is some farming

Hardy crops, like potatoes, beans, and barley, are raised on the higher slopes, but below five thousand feet above sea level such products as sugar cane, bananas, cocoa, and coffee are raised. Coffee is the chief export; in fact, Venezuela ranks as the second greatest coffee-producing section.

In parts of Venezuela there are vast forests which produce valuable dyewoods and rubber; and among the mountains are rich mineral deposits, especially gold.

The capital, CARACAS, five or six miles from the sea, is situated upon a plateau, more than three thousand feet above sea level. It is connected with its seaports by a short railway.

2. Chief city

In 1812 Caracas was visited by a terrible earthquake, when a great part of the population was at church. The first shock caused the bells to toll; but after all danger was thought to be past, there came a fearful noise from underground, resembling the rolling of thunder, though louder and longer. Then followed a shaking of the earth, so severe that churches and houses were overthrown, and the inhabitants were buried beneath their ruins. On that day fully twelve thousand persons perished.

SECTION V. THE TROPICAL ANDEAN COUNTRIES

The countries in the western part of South America, named from north to south, are Colombia, Ecuador, Peru, Bolivia, and Chile. Locate each on the map (Fig. 293), and tell what countries are on its border. All but the last named lie entirely in the tropical zone.

FIG. 309. Dense tropical foliage on the lowlands of Ecuador near the coast.

Facts about the Andes Mountains

Each of these countries is very mountainous, for the Andes rise from the sea-coast and extend all the way from Panama to Cape Horn. Which country stretches fully half of this distance? Which is next longest?

Although the Andes are not so broad as the Cordillera of North America, they form one of the longest and highest mountain chains in the world. The loftiest peak is Aconcagua in Argentina, which rises 22,860 feet above sea level. The loftiest in North America is Mt.

McKinley in Alaska, which is almost half a mile lower (20,460 ft.), or about the height of Mt. Chimborazo in Ecuador.

These lofty mountains are even now growing higher. Now and then, as they are slowly pushed upward, the rocks break apart and severe earthquakes are caused. This region has been visited by some of the most terrible earthquakes in the world's history, destroying many lives and many buildings. Besides, some of the highest peaks are volcanoes from which lava and ashes are at times sent forth.

Variety of climate and of farm products

In such a mountainous country, there is, of course, great variety of climate. Tropical heat prevails throughout the lowlands (Fig. 310); but on the mountain slopes there are temperate and even frigid climates.

There is, therefore, much variety in the farm products. Up to an elevation of three thousand to four thousand feet, bananas, sugar cane, cocoa, and other plants of hot climates flourish. Above this, to an elevation of six or seven thousand feet, tobacco, corn, and coffee are cultivated. From this height up to about ten thousand feet, wheat and our Northern vegetables and fruits do well; but above ten thousand feet the bleak mountain peaks are too cold for farming (Fig. 297).

There are great differences in rainfall, as well as in temperature. Near the equator the rainfall is heavy; but in southern Peru, the climate is arid. On this account the tropical forest gradually disappears toward the south, and is replaced first by arid plains, and then by deserts.

Valuable minerals

Rich deposits of precious metals were found in the Andes soon after the discovery of South America. In fact, this was the principal reason why the Spaniards took possession of so much of the continent. Hundreds of millions of dollars' worth of gold and silver were taken out of the rocks of the Andes Mountains, and every year large quantities are still mined.

Colombia

Colombia, named after Columbus, has seacoast on both oceans. The western part is very mountainous, for several of the Andean ranges end there. Much mineral is found, gold and silver being most important. Valuable emeralds also are obtained.

In the eastern portion, on the other hand, are treeless llanos on which large numbers of cattle are raised. Coffee is the principal product and the chief export; but sugar cane, tobacco, and cocoa also are produced. On the mountain slopes the grains, fruits, and vegetables of temperate climates are grown.

Bogota, the capital and largest city, is situated far in the interior, at an elevation of about a mile and a half above sea level. It has an agreeable climate, even though within the tropical zone.

Panama

The small republic of Panama was formerly a part of Colombia, but it revolted and became an independent country a few years ago. Why is the United States especially interested in it? What can you tell about the Panama Canal zone (p. 144)?

Ecuador

Why should the name Ecuador, the Spanish word for *equator*, be given to this country? The principal industries are farming and cattle raising. The chief farm products are wheat and barley on the highlands, and coffee, sugar cane, and *cocoa*, on the lowlands. Cocoa is the most important product of Ecuador, and fully one fifth of all that is produced in the world comes from here.

FIG. 310. — A house in Ecuador raised above the ground because of the dampness.

The cocoa tree, which grows in the shade of the larger forest trees, has small pink and yellow blossoms which spring directly from the main trunk and branches. After blossoming, golden-colored pods grow, in each of which are a number of seeds, or beans, about the size of a large almond. After being washed, dried, and roasted, the beans are ready to be made into cocoa and chocolate. What are some of their uses? By what routes might they be shipped from Guayaquil to New York?

Another product of Ecuador, and of some other South American countries, is *sarsaparilla*. The rubber industry is also well developed.

There is some gold mining in Ecuador, but not much mining of other minerals. The country is so mountainous, and the roads are so poor, that it is difficult to carry machinery to the mines. Therefore only the richest deposits are worked. There is almost no manufacturing in the country.

QUITO, the capital and largest city, is situated among the mountains of the interior at an elevation of about nine thousand feet. Next in size is the seaport GUAYAQUIL, the westernmost of the large cities of South America. It is in W. Long. 80°. Does it lie east or west of Washington, D.C.?

Peru

1. Climate

There is abundant rainfall in northern Peru and in the upper Amazon Valley on the eastern side of the Andes. But in southern Peru the climate is arid and even desert (Fig. 298). So little rain falls in southwestern Peru that in some parts, even close by the sea, there is an average of but one shower in seven years.

2. Mining

Peru was one of the most valuable sources of gold and silver for the Spanish conquerors. The Incas, who dwelt there, had collected gold for ornaments, and this the Spaniards seized. Then, opening mines, they

forced the Indians to work in them as slaves. Since that time vast quantities of gold and silver have been obtained in Peru. Valuable deposits of coal, petroleum, and copper also have been found.

FIG. 311. — A group of llamas, the beasts of burden of the lofty Andes.

3. Agriculture

There is much agriculture in Peru, the chief crops being corn, wheat, and potatoes among the mountains, and sugar cane, cotton, tobacco, cocoa, and coffee in the lower and warmer sections. Large numbers of sheep and cattle are raised, and also of the llama and the alpaca (Fig. 311).

A peculiar product of Peru is *coca*, from which *cocaine*, is made; and another is *cinchona*, or *Peruvian bark*, from which *quinine* is manufactured. These plants were cultivated by the Incas before the coming of the Spaniards.

4. Manufacturing and transportation

There is some manufacturing in Peru, especially of sugar and cotton goods. One great difficulty, however, has been that of transportation. The lofty Andes extend the entire length of the country, separating the Pacific coast from the broad, forest-covered plains of eastern Peru. To overcome this difficulty, the Peruvians have built several railways, one of which deserves special mention. Beginning at CALLAO this line passes through Lima; then it climbs the mountains, crossing deep gorges, by means of high trestles, winding about on the very edges of precipices, tunneling through the mountain rock, and finally crossing the western range of the Andes at an elevation of more than fifteen thousand feet.

5. Chief cities

LIMA, the capital (Fig. 312), founded by the Spanish conquerors in 1535, is situated at the base of the Andes. CALLAO, the seaport of Lima, is about seven miles from the capital.

FIG. 312. — A view of Lima, the capital of Peru.

AREQUIPA, at an elevation of seven thousand feet, is separated from the sea by sixty miles of desert. CUZCO is on an interior table-land, at an elevation of more than eleven thousand feet. The ruins of the Inca citadels and "palaces" are still to be seen, and many pure-blooded and half-breed Incas (Fig. 302) still dwell in and near this ancient capital.

Bolivia, named after General Bolivar, the great South American leader in the re-

FIG. 313. — Indians in their grass boats on Lake Titicaca.

country, with broad and very high plateaus between the mountain ranges. In one of these valleys lies Lake Titicaca (Fig. 313), partly in Peru and partly in Bolivia. This lake, the greatest in South America, is about a third the size of Lake Erie. It is the most elevated great lake in the world, lying over twelve thousand feet above the sea.

Bolivia

The Incas occupied this region also, and mined much gold. Besides gold, the Spanish discovered veins of copper, tin, and silver, so that mining has been one of the leading industries of the country.

volt against Spain, was robbed of its seacoast by Chile. It is a mountainous

FIG. 314. — La Paz, the largest city of Bolivia, situated in an arid valley among the lofty Andes.

Both the mining and the work of extracting the metals from the ore are very crude. For example, instead of using machines for crushing the ore, as in the United States, sometimes they roll bowlders around on the ore. Since there are almost no railways, goods are carried for the most part by trains of pack mules, donkeys, alpacas, or llamas (Fig. 311). The llama here, as in Peru, is of great value to the inhabitants as a beast of burden, and as a source of wool for clothing.

Like the Amazon Valley of Brazil, much of eastern Bolivia is an almost unknown forest wilderness. On the plateau and in the mountain valleys, however, there are settlements where agriculture is carried on, with the same products as those of Peru. Name them. Most of these are consumed at home, though some coffee is exported.

A railway line connects western Bolivia with the sea; but there is great need of others. Another need is the improvement of the water ways, to provide river transportation to the Atlantic. Through what rivers could boats pass to the sea?

Find the capital of Bolivia. La Paz (Fig. 315), the largest city, has twice as many inhabitants as the capital.

SECTION VI. CHILE

Surface features

The eastern boundary of Chile is the divide between the Atlantic and Pacific drainage slopes; and since this divide runs along the Andes, the country is very mountainous, and narrow from east to west. Measure its length; also its width. Except in the south, the coast line is regular, like that of the rest of South America.

Climate

The climate varies more than that of any other South American country. The northern part is within the torrid zone, while the southern end reaches far into the bleak south temperate zone; and on the mountain slopes there is every climate, from torrid to frigid (Fig. 315). The very name, Chile, comes from an Indian word for snow.

Fig. 315. — A view in the lofty snow-covered Andes of Chile.

There is also great variation in rainfall. Northern Chile is arid, and in some portions a desert; while central and southern Chile reach into the rainy belt of prevailing westerlies (Fig. 273). The best developed section of the country lies in the middle part, between the hot, arid north and the bleak, rainy south.

Mining

There is much mineral wealth, including gold, silver, coal, and copper. Copper is one of the most valuable of these minerals, and Chile, like the United States, is one of

FIG. 316. — Indians living in the cold southern region in the Straits of Magellan.

the great copper-producing countries of the world. Even more important than the copper are the beds of nitrate of soda, which yield many million dollars' worth of *nitrate* every year. This substance is the principal export of the country.

The nitrate beds lie in the midst of the Desert of Atacama (Fig. 296), in which rain seldom falls. The substance occurs in layers from a few inches to one or two feet thick, over an area thirty or forty miles in breadth. Its chief use is as a fertilizer, for which purpose large quantities are shipped from the port of IQUIQUE.

Agriculture

Agriculture is extensively carried on in Chile, especially in the rainy middle portion. The principal crops are the various grains, tobacco, fruits, and vegetables. More wheat and barley are produced than are needed at home, so that Chile helps to supply other nations with these grains. Large herds of cattle are reared; and in southern Chile sheep raising is one of the chief industries. Hides, leather, and wool are exported.

There is more manufacturing than in most South American countries, the principal kinds being flour milling,

FIG. 317. — The shipping in the harbor of Valparaiso.

cheese making, tanning, and shoemaking. Manufacturing is rapidly increasing; but, as in other South American countries, it is still necessary to import machinery and other manufactured articles from Europe and from the United States.

Manufacturing

Chile is one of the most progressive nations in South America. Its government is good, and its industries are well developed. It is interesting to note that the two most advanced nations of South America lie side by side in the temperate zone, while the next most progressive country, Brazil, is partly in that zone.

Progress of the country

Since Chile is the leading Andean country, it is natural that it should have the largest city on the Pacific coast. This is SANTIAGO, the capital, which has a population of one third of a million. It is situated fifty miles inland, and half a mile above the level of the sea. VALPARAISO (Fig. 317), the largest and busiest port on the Pacific coast, is also in Chile. It is about half the size of Santiago.

The principal cities

SECTION VII. ISLANDS NEAR THE CONTINENT

Just off the coast of Venezuela, opposite the mouth of the Orinoco, is the low island of *Trinidad*, a British possession. This island is especially noted for its pitch lake, from which asphaltum is obtained for use in making asphalt pavements. The asphaltum oozes slowly from the ground; and, as it is dug out, more takes its place, showing that there is a very large supply beneath the surface.

On the north side

Just east of the southern tip of South America are the *Falkland Islands*, which belong to Great Britain. Still farther east are the islands of *South Georgia*, also British. They are ice-bound lands, with no permanent inhabitants.

On the southeast

West of Chile, and belonging to that country, is the island of *Juan Fernandez*. This is the island where Selkirk was wrecked, and by some is thought to be the island on which Defoe located the story of Robinson Crusoe. It seems quite certain, however, that the novelist described Tobago, just north of Trinidad, and not Juan Fernandez.

On the west

The *Galapagos Islands*, about six hundred miles west of Ecuador, on the equator, are a group of small volcanic islands owned by Ecuador. They are too far from the continent to appear on our map.

Review Questions

1. Compare North and South America in area and population. 2. Why might it have been supposed that South America would be settled as rapidly as North America? 3. Give several reasons why it has not been settled so rapidly. 4. Describe the plant life. 5. The animal life. 6. What can you tell about the native inhabitants? 7. Compare Argentina with the United States as to area, climate, and surface features. 8. What are its principal products? 9. What is the condition of manufacturing? 10. What are the conveniences for transportation? 11. Name the principal products of Paraguay and Uruguay. 12. Name and locate the capitals of Paraguay, Uruguay, and Argentina. 13. What can you tell about Buenos Aires? 14. Locate other cities mentioned. 15. Compare Brazil with the United States in area and population. 16. Describe the conditions in the Amazon valley. 17. What is the appearance of the tropical forest? 18. What valuable products are obtained there? 19. How is rubber obtained? 20. What are the agricultural products of Brazil? 21. State some facts about the coffee industry in Brazil. 22. What is the condition of mining? Of manufacturing? 23. Name and locate the

incipal cities. 24. Name the Guianas. hat are their chief products? 25. Describe e surface features of Venezuela. 26. What e its products? 27. Locate the chief city. . What can you tell about the Andes Mounins? 29. Why is there a great variety of rm products in the tropical Andean countries? . What minerals are found there? 31. What out the surface features and the products of olombia? 32. What is the leading city? . What are the agricultural products of cuador? 34. What about mining and manucturing? 35. Name and locate the principal ties of Ecuador. 36. What climate has eru? 37. What about mining there? . Agriculture? 39. Manufacturing and ansportation? 40. Name and locate its chief ties. 41. Describe the surface features of olivia. 42. Tell about mining in that couny. 43. Agriculture. 44. Commerce and ief cities. 45. Describe the surface of Chile. . The climate. 47. What can you tell about ining there? 48. Agriculture? 49. Manuicturing? 50. What about the progress of hile? 51. Locate the chief cities. 52. Name, cate, and tell the principal facts about the lands near South America.

omparisons ith North merica

1. Which of the two Americas has the adantage in regard to latitude? Show how. 2. Locate the arid sections in each continent (Figs. 274, 298). 3. Point out the rainiest section in each. 4. Which of the two ontinents has the better position for world ommerce? Why? 5. Into what ocean do e principal rivers of South America flow? f North America? 6. What can you say out the regularity of the coast of the two ontinents? Which has the advantage in this spect? How? 7. Locate the five principal coast cities of South America; of North America. How do they compare in size? 8. What about the number of lakes in each continent, and their value for commerce? 9. What about the number of large cities in the interior of each continent? 10. Compare both Brazil and Argentina with the United States in area; in population. (See the Appendix.) 11. Compare Chile with Texas in these two respects. 12. Make a list of the important farm products common to South America and the United States. 13. Name some products that are extensively raised in one and not in the other. 14. Which parts of each continent are especially noted for cotton? Coffee? Wheat? Cattle and sheep? Copper? Precious metals? 15. What is the prevailing kind of government in North and in South America? What sections have a different kind of government?

Suggestions

1. Make a sand model of South America, showing the highlands and lowlands. 2. Read about Pizarro's conquest of Peru. 3. Find out more about the Inca Indians. 4. What are the five leading cities of South America? 5. Compare South America with North America in regard to distance from Europe. Which has the advantage in this respect for immigration? 6. Will the Panama Canal be of importance to us in our trade with any part of South America? Examine a globe to see. 7. If the southern end of Chile were placed at San Diego in California, where in North America would the northern end reach? 8. Draw an outline map of South America, putting in the mountain ranges, chief rivers, and cities. Add the boundaries and names of the several countries. 9. Name and locate the capital of each South American country.

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PART IV. EUROPE

Map study

1. Trace the boundary line between Europe and Asia, naming the mountains and waters that in part form it. 2. How does the coast line of Europe compare in regularity with that of South America? Of North America? 3. Name the largest peninsulas, and draw an outline map to show them. 4. Where are the highest mountains? 5. Name and locate the principal rivers. 6. Where are the plains? Which very large country is made up mainly of plains? 7. How does Russia compare in size with the other countries of Europe? With the United States? (See Appendix.) 8. In what zones does Europe lie? 9. The 40th parallel of latitude crosses what countries of Europe? Through or near what cities in the United States does it pass? 10. Point out those countries of Europe in which some of the people that you know used to live. 11. What route did they probably take in order to reach America? 12. Walk toward Europe.

SECTION I. GENERAL FACTS ABOUT EUROPE

Eurasia

You have already learned that Eurasia is the largest land mass on the earth. It extends northward far within the Arctic Circle, and southward almost to the equator. From east to west it reaches nearly halfway around the earth. Show this on a globe. It is much larger than North and South America together.

The peninsula called *Europe*

Eurasia is the most irregular of all the lands, having many large peninsulas. Name four or five of these (Fig. 434). The largest of them all is the one we call *Europe*. Notice on the map (Fig. 318) that water borders Europe on the southern, western, and northern sides, making it a peninsula. What are the names of the bodies of water that so nearly surround Europe?

It is not easy to tell just where to draw the boundary between Europe and Asia. Indeed, some maps show one boundary line, some another. Trace the boundary, and tell what parts are natural (p. 2), and what parts artificial. Although joined to Asia on the east, it is common to class the peninsula of Europe as one of the continents.

The surface features

1. The mountains

There is much mountainous land in Europe, as you can see on the relief map (Fig. 320). In the northwest, there are low mountains in the British Isles, and a long, low chain in the Scandinavian peninsula. Another long range, the Urals, extends from north to south along the eastern boundary of Europe. The most mountainous section, however, is in the south, and here the mountains are highest. Name the different ranges. Which lie farthest east? Which farthest west? What is the name of the range in the Italian peninsula? Are all the peninsulas mountainous? Besides these main mountain ranges, there are other

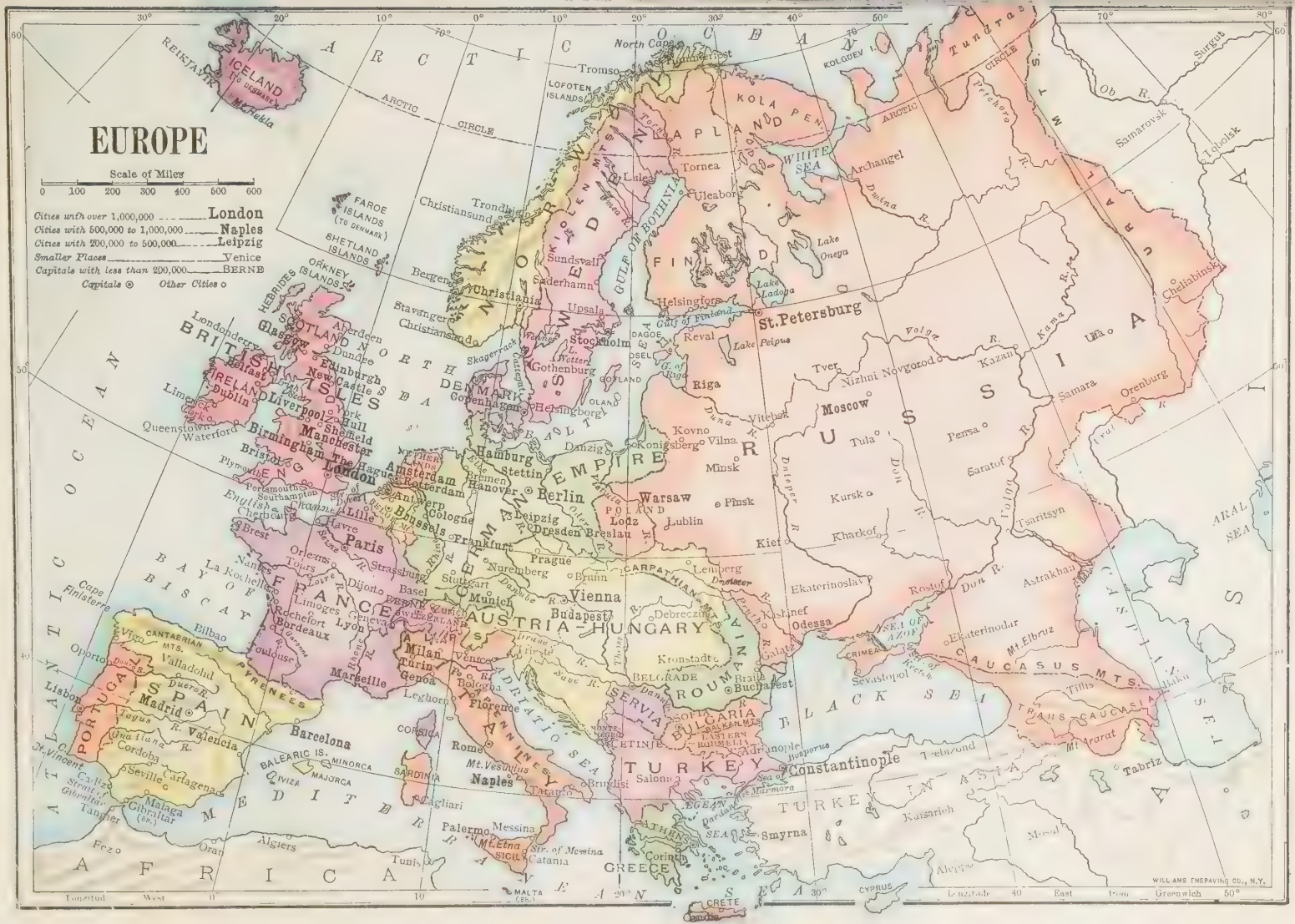

EUROPE
Scale of Miles
0 100 200 300 400 500 600
Cities with over 1,000,000 — London
Cities with 500,000 to 1,000,000 — Naples
Cities with 200,000 to 500,000 — Leipzig
Smaller Places — Venice
Capitals with less than 200,000 — BERNE
Capitals ⊙ Other Cities ○
ARCTIC OCEAN
ATLANTIC OCEAN
BAY OF BISCAY
MEDITERRANEAN SEA
BLACK SEA
CASPIAN SEA
ARAL SEA
ICELAND
FAROE ISLANDS
SHETLAND ISLANDS
ORKNEY ISLANDS
HEBRIDES
BRITISH ISLES
IRELAND
SCOTLAND
ENGLAND
NORTH SEA
NORWAY
SWEDEN
DENMARK
FINLAND
KOLA PENINSULA
LAPLAND
RUSSIA
GERMANY
FRANCE
SPAIN
PORTUGAL
AUSTRIA-HUNGARY
SWITZERLAND
ITALY
SICILY
SARDINIA
CORSICA
BALEARIC IS.
BELGIUM
HOLLAND
DENMARK
SERVIA
BULGARIA
ROUMANIA
TURKEY
GREECE
CRETE
CYPRUS
MALTA
AFRICA
ASIA
Tromso
North Cape
Christiania
Bergen
Stockholm
Upsala
Gothenburg
Copenhagen
Helsingfors
Reval
Riga
St. Petersburg
Moscow
Archangel
Tornea
Luleå
Uleaborg
Christiansund
Trondhjem
Stavanger
Aberdeen
Dundee
Edinburgh
Glasgow
Belfast
Dublin
Liverpool
Manchester
Birmingham
London
Bristol
Southampton
Cherbourg
Brest
Le Havre
Paris
Lille
Amsterdam
Rotterdam
Antwerp
Brussels
Cologne
Hamburg
Bremen
Hanover
Berlin
Stettin
Leipzig
Dresden
Breslau
Frankfurt
Nuremberg
Prague
Vienna
Budapest
Munich
Stuttgart
Basel
Strasburg
Lyon
Marseille
Bordeaux
Toulouse
Milan
Turin
Genoa
Venice
Florence
Rome
Naples
Palermo
Messina
Catania
Brindisi
Salonica
Constantinople
Smyrna
Athens
Corinth
Sevastopol
Odessa
Kiev
Kharkof
Kursk
Tula
Saratof
Astrakhan
Rostof
Ekaterinodar
Tiflis
Baku
Tabriz
Trebizond
Erzerum
Mosul
Aleppo
Warsaw
Lodz
Lublin
Minsk
Pinsk
Kovno
Vilna
Konigsberg
Danzig
Lemberg
Kishinef
Bucharest
Sofia
Adrianople
Madrid
Valladolid
Lisbon
Oporto
Bilbao
Valencia
Barcelona
Cordoba
Seville
Cartagena
Malaga
Gibraltar
Tangier
Fez
Algiers
Oran
Tunis
Cagliari
Palermo
Mt. Etna
Mt. Vesuvius
Mt. Ararat
Mt. Elbruz
Mt. Vincent
Cape Finisterre
Cape Vincent
Strait of Gibraltar
Str. of Messina
Sea of Marmora
Sea of Azof
Sea of Kerch
Bosporus
Dardanelles
Gulf of Finland
Gulf of Riga
Gulf of Bothnia
Lake Onega
Lake Ladoga
Lake Peipus
Volga R.
Kama R.
Ural R.
Ob R.
Dvina R.
Pechora R.
Dnieper R.
Don R.
Danube R.
Vistula R.
Elbe R.
Rhine R.
Seine R.
Loire R.
Rhone R.
Po R.
Tiber R.
Tagus R.
Ebro R.
Guadalquivir R.
Duero R.
Garonne R.
Arctic Circle
Tropic of Cancer
Longitude West 0 10 20 30 Longitude 40 East from Greenwich 50°
WILLIAMS ENGRAVING CO., N.Y.

FIG. 318.

PHYSICAL MAP OF
EUROPE
Scale of Miles
0 100 200 300 400 500
KEY
ARCTIC OCEAN
North Cape
LOFODEN ISLANDS
ICELAND
Mt Hekla
FAROE IS.
SHETLAND IS.
ORKNEY IS.
HEBRIDES
BRITISH ISLES
CHAMPIANS
PENNINE RANGE
WELSH MTS.
Irish Sea
St. George's Channel
Lands End
English Channel
Strait of Dover
NORTH SEA
Skagerrack
DANISH PENINSULA
SCANDINAVIAN PENINSULA
Scandinavian Highlands
BALTIC SEA
GULF OF BOTHNIA
LAKE ONEGA
Lake Onega
Lake Ladoga
Gulf of Finland
Lake Peipus
Valdai Plateau
KOLA PENINSULA
KOLGUEV I.
VAIGACH I.
TUNDRAS
URAL MOUNTAINS
ASIA
GREAT NORTHERN LOWLAND
Plain of Bohemia
CARPATHIAN MTS.
Hungarian Plain
TRANSYLVANIAN ALPS
Walachian Plain
Danube R.
Dnieper R.
Dnieper R.
Don R.
Volga R.
Kama R.
Ural R.
CASPIAN STEPPES
CASPIAN SEA
Mt. Elbruz
CAUCASUS MTS.
CRIMEA
BLACK SEA
Bosporus
Sea of Marmora
Dardanelles
EGEAN SEA
BALKAN MTS.
BALKAN PENINSULA
PINDUS MTS.
GRECIAN PENINSULA
MOREA PENINSULA
CRETE
CYPRUS
ATLANTIC OCEAN
Cape Finisterre
BAY OF BISCAY
PLAIN OF FRANCE
Loire R.
Seine R.
Garonne R.
CEVENNES
JURA
Mt. Blanc
Rhone R.
THE ALPS
Lombardy Plain
Po R.
PYRENEES
CANTABRIAN MTS.
SPANISH PENINSULA
SPANISH PLATEAU
Tagus R.
Ebro R.
Douro R.
Guadiana R.
SIERRA MORENA
Guadalquivir
SIERRA NEVADA
Cape St. Vincent
Strait of Gibraltar
BALEARIC ISLES
CORSICA
SARDINIA
ITALIAN PENINSULA
Mt. Vesuvius
Strait of Messina
SICILY
Mt. Etna
MALTA
ADRIATIC SEA
DINARIC ALPS
PAPENNINES
MEDITERRANEAN SEA
AFRICA
ASIA
Longitude West
Longitude East from Greenwich

FIG. 319.

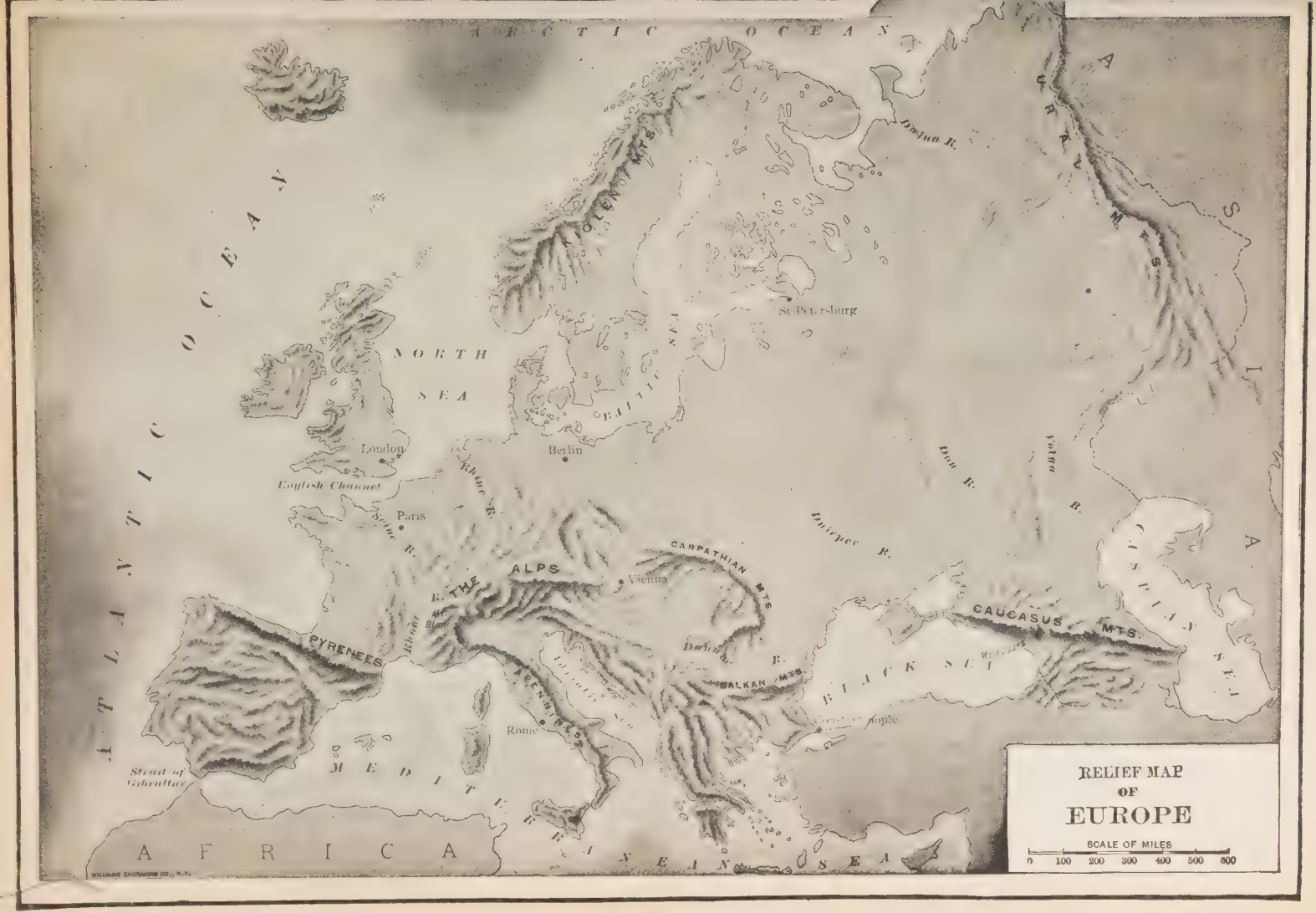

ARCTIC OCEAN
ATLANTIC OCEAN
NORTH SEA
BALTIC SEA
KOLEN MTS.
URAL MTS.
ASIA
Dwina R.
St Petersburg
London
English Channel
Paris
Seine R.
Rhine R.
Berlin
Dnieper R.
Don R.
Volga R.
CASPIAN SEA
CARPATHIAN MTS.
THE ALPS
Vienna
PYRENEES
Ebro R.
Rhone R.
Danube R.
BALKAN MTS.
CAUCASUS MTS.
BLACK SEA
Constantinople
APENNINES
Rome
Strait of Gibraltar
MEDITERRANEAN SEA
AFRICA
RELIEF MAP
OF
EUROPE
SCALE OF MILES
0 100 200 300 400 500 600
WILLIAMS ENGRAVING CO., N.Y.

FIG. 320.

lower, shorter mountain ranges, as in the Spanish peninsula, and north of the

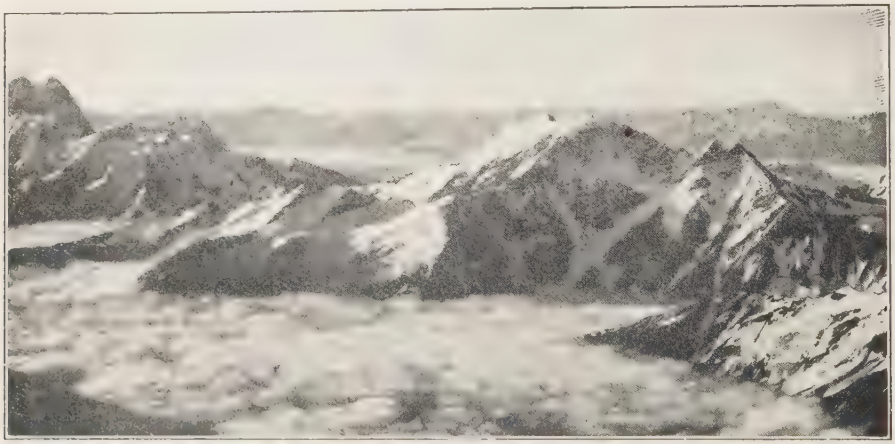


FIG. 321. — A view over the crests of the lofty snow-covered Caucasus Mountains. The valley in the front is filled with clouds.

Alps. The Caucasus (Fig. 321) are the loftiest of all these mountains, and the

way to the sea through several of the large rivers of Europe. What are the names of the largest (Fig. 319)? Headwaters of four of them are within

FIG. 322. — The lofty Alps, from whose summits the snow never melts. Many people visit this place every summer because of the grand scenery.

Alps (Fig. 322) are next in height. The rains and snows of the Alps find their

forty miles of one another in the Alps. Which are they?

Bounded by the mountains of the northwest, the east, and the south there is an extensive lowland (Fig. 320). This plain extends from southern England and northern France, through Belgium and Holland, or the "Low Countries," entirely across Germany (Fig. 347) and Russia (Fig. 318). It broadens toward the east until it includes almost all of Russia. Estimate its length from east to west. About two thirds of Europe is included in this plain.

2. The low plain between these mountains

You have learned that the irregular northeastern coast line of North America was caused by the sinking of the land. The irregular coast of northwestern Europe was caused in the same way. The Baltic Sea and its gulfs are old land valleys, sunk beneath the sea; and some of the hills of this sunken land rise as islands and peninsulas. Other parts of it form shallow banks where food fish abound.

3. The coast line

The growth of the mountains in southern Europe has caused many peninsulas, with bays, gulfs, islands, and seas between. Even the great Mediterranean Sea lies in a basin formed by the sinking of a part of the earth's surface.

As a result of all these movements of the land, Europe has the most irregular coast of all the continents. Name the larger peninsulas, gulfs, and seas that border Europe. How about the number of fine harbors? Show, by examples, how such an irregular coast is of advantage in allowing vessels to sail far into the interior of the continent.

FIG. 323. — Map of the coal fields of Europe.

We have already seen that the minerals beneath the soil are of great use to man, and that mining and manufacturing them are important industries. Europe has a great wealth of valuable minerals, and among them the two most useful of all, — coal and iron. From the map (Fig. 323) you can see that coal is found in many places, and, therefore, that many countries of Europe have a supply of this valuable fuel. Most of this coal is bituminous, but some is anthracite.

Mineral wealth

Trace the 50th parallel of latitude on a globe or a map of the world. Notice that while the 49th parallel forms the northern boundary of western United

Climate

1. The latitude of Europe

States, it passes entirely south of England, crosses France near Paris, and extends through southern Germany and Russia. From this it is seen that by far the larger part of Europe lies farther north than the United States, and due east of Canada St. Petersburg is in the same latitude as northern Labrador; and the tips of the peninsulas of southern Europe reach no farther south than the southern boundary of Virginia.

2. The population and crops there

In spite of its northern latitude, Europe has over four times as many inhabitants as our own continent, or nearly four hundred million persons. Yet it is less than half the size of North America.

In the Far North, near the Arctic Ocean, the climate is bleak, and there are barren, frozen tundras. But south of this is a belt of fir, spruce, pine, and other trees. Within the forest belt, and south of it, the climate is mild enough for the growth of the grains and fruits that flourish in southern Canada and northern United States. Farther south, in southern Europe, in the latitude of central United States, such semi-tropical fruits as oranges, lemons, olives, and figs are cultivated. That is to say, the products of the greater part of Europe are such as grow several hundred miles farther south in eastern North America.

3. Explanation of these surprising facts

One of the chief reasons for this mild climate, so far north, is the direction of the winds. Northern Europe is in the belt of prevailing west winds, and these blow from the ocean which, as you have learned (p. 203), is warmed by a great ocean current that flows from the south. These winds bring both warmth and moisture to the land. Without such winds, much of this densely populated continent (Fig. 325) would be a barren waste, like Labrador.

(1) The prevailing west winds

In North America, where high mountains extend north and south along the entire western side of the continent, the warm, damp air soon loses its moisture as it moves eastward (p. 194). In Europe, on the other hand, where the high ranges extend nearly east and west, the mountains interfere much less with the movement of vapor to the interior. For that reason the west winds give up their moisture little by little, and over a wide area. This is the chief reason why there is no arid land from western Ireland to eastern Russia.

(2) The absence of north and south mountain ranges in the west

Why southern Europe has a dry climate

Examine Figure 324 to see where the rainfall in Europe is light. One section is in the east, far away from the ocean. Another is in southern Spain, Italy, and Greece. Here the rainfall comes mainly in the winter, and the summers are quite dry. The reason is that in winter the west winds blow here. But in summer this section, like southern California, lies in the belt of horse latitudes.

Why so many countries, with different languages

Make a list of the different countries that you find on the map of Europe. How many are there? Each of these has its own language, so that a person living in one country cannot understand what is said in another, unless he has learned its language.

Some of the reasons for so many coun-

BRITISH ISLES
Scale of Miles
0 50 100 150
Cities with over 1,000,000 LONDON
Cities with 500,000 to 1,000,000 Glasgow
Cities with 300,000 to 500,000 Edinburgh
Cities with 100,000 to 300,000 Portsmouth
Smaller places Inverness
Capitals of Countries
Other Cities
SHETLAND ISLANDS
MAINLAND
FAIR I.
WESTRAY
ORKNEY ISLANDS
SANDAY
STRONSAY
MAINLAND
HOY
Cape Wrath
Pentland Firth
Duncansby Head
Wick
The Minch
Dornoch Firth
Moray Firth
Kinnaird Head
Peterhead
Inverness
Nairn
Loch Ness
Keith
Aberdeen
SKYE
Sea of the Hebrides
Ben Nevis
Montrose
Dundee
Perth
Firth of Tay
MULL
Firth of Lorne
JURA
Kirkcaldy
Firth of Forth
ISLAY
Greenock
Paisley
Glasgow
Leith
Edinburgh
R. Tweed
ARRAN
Hamilton
Kilmarnock
Ayr
Firth of Clyde
North Channel
Mull Head
Bloody Foreland
Dumfries
Solway Firth
Carlisle
Newcastle
South Shields
Sunderland
R. Tyne
Gateshead
Hartlepool
Workington
Darlington
Middlesbrough
Scarborough
ISLE OF MAN
Barrow-in-Furness
Lancaster
York
Leeds
Hull
Bradford
Preston
Blackburn
Bolton
Halifax
Doncaster
Grimsby
R. Humber
Sheffield
Lincoln
Liverpool
Birkenhead
Old-ham
Manchester
Holyhead
ANGLESEY
Chester
Macclesfield
Mansfield
Burslem
Nottingham
Snowdon
Longton
Derby
R. Trent
The Wash
Kings Lynn
Yarmouth
Norwich
Shrewsbury
Walsall
Leicester
Birmingham
Peterborough
Lowestoft
Cardigan Bay
Aberystwyth
Wolverhampton
R. Severn
R. Ouse
Stratford on Avon
Cambridge
Bedford
Ipswich
Luton
Colchester
Gloucester
Oxford
LONDON
West Ham
R. Thames
Haverfordwest
Swansea
Merthyr Tydfil
Pembroke
Cardiff
Bristol
Swindon
Reading
Croydon
Chatham
Ramsgate
Folkestone
Dover
Bristol Channel
Bath
Winchester
Southampton
Hastings
Strait of Dover
Boulogne
Barnstaple
Taunton
Exeter
Lyme Bay
Torquay
Portsmouth
Brighton
Plymouth
Penzance
Truro
Falmouth
Lands End
SCILLY IS.
Dieppe
FRANCE
Cherbourg
CHANNEL IS.
Williams Engraving Co., N.Y.
Longitude West from Greenwich
Longitude East
ATLANTIC OCEAN
ENGLISH CHANNEL
IRISH SEA
NORTH SEA
ATLANTIC OCEAN
HEBRIDES
SCOTLAND
ENGLAND
WALES
IRELAND
Erris Head
Killala Bay
Doneval Bay
DONEGAL MTS.
L. Foyle
Londonderry
Lough Neagh
Belfast
Sligo
Ballina
Enniskillen
Armagh
Lurgan
Newry
Dundalk
Dundalk Bay
Drogheda
Westport
L. Mask
L. Corrib
Athlone
Galway
Dublin
Kingstown
Tullamore
ARAN IS.
Ennis
Wicklow
Loop Head
R. Shannon
Limerick
Kilkenny
Carlow
Tipperary
Clonmel
Wexford
Tralee
Killarney
Lakes of Killarney
Waterford
Cork
Queenstown
Carnsore Pt.
Mizen Head
St. George's Channel
Bristol Channel
Cheviot Hills
Pennine Range
Wash
Solway Firth

FIG. 327.

tries and languages are easy to understand. For instance, it is plain why the British Isles should form a separate nation. They are surrounded by water, and are thus cut off from other people. Naturally, therefore, the British have remained independent, and have formed a language of their own.

1. Because the water often separates the people

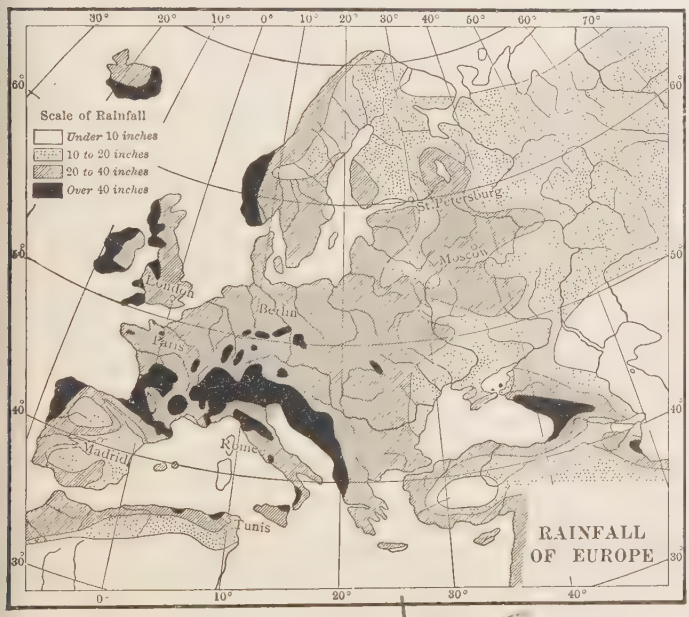


FIG. 324.—Rainfall map of Europe.

Italy is *nearly* surrounded by water; and on the north, where there is no water, the Alps Mountains rise, like a great wall, shutting out people on that side. Italy has, therefore, developed a government and language of its own. Note how many other countries of Europe are on peninsulas. Name them.

2. Or water and mountains separate them

The water and mountains have had much influence in breaking Europe up into so many countries with different languages. In times past, when there were no railroads, and there was little travel, each lot of people, thus separated from others, learned to govern themselves and to speak a separate language.

There is a third important reason for so many countries and languages. Hundreds of years ago wars were very frequent, — much more so than now. Groups of people, including those who were not separated either by water or by mountains, often quarreled with one another, went to war, and finally set up different governments. What countries do you find on the map that do not seem to be cut off from their neighbors on all sides, either by water or by mountains?

3. Or their quarrels separate them

There was a time when there were even more countries in Europe than now, but in recent years many of the smaller divisions have been united. This shows that people are gradually learning to live together in peace.

Although Europe is called a continent, it is really very small to be given that name. Next to Australia, it is the smallest of all the continents. The whole of Europe is only a little larger than the United States, including Alaska. Yet it contains nearly five times as many inhabitants as our country. This makes it plain that Europe is much more thickly settled than the United States.

Area and population compared with our own

In spite of the fact that Europe is so small, it is really the most important of all the continents.

How Europe is the leading continent

FIG. 325. — What reasons can you suggest for the fact that certain parts, like central Spain, Northern Russia, and Scandinavia, and the country between the Black and Caspian seas, are not densely populated?

1. The mother continent

In the first place, it is the mother continent for the New World, because America has been settled by immigrants from Europe (Fig. 326). What different countries of Europe first settled North America (p. 1)? South America (p. 212)? Point out these countries on the map of Europe. What country of Europe still holds about half of North America as its colony? Europe is the mother continent of other parts of the world, also, as you will learn later.

2. The teacher of the world

While Europe is the *mother* continent of much of the world, she is also the *teacher* of most of it. Her children, who are scattered over the New World and elsewhere, naturally look to her for instruction. Other parts of the world, such as China and Japan, look to her, too.

The countries of Europe, being so much older and so much more progressive than many other countries, have long taken the lead in discovering the best ways of carrying on agriculture, mining, manufacturing, and commerce. Most of the best books, also, and a large part of the best music, paintings, and sculpture have come from Europe. For these reasons people from all parts of the world look to Europe for the best thoughts on most subjects, and they often go there to study.

Some of the countries of Europe have been far more active than others as

world leaders. There are six that are now especially prominent; namely, the British Isles, Germany, France, Italy, Austria-Hungary, and Russia. Locate each of these.

Europe's World Powers

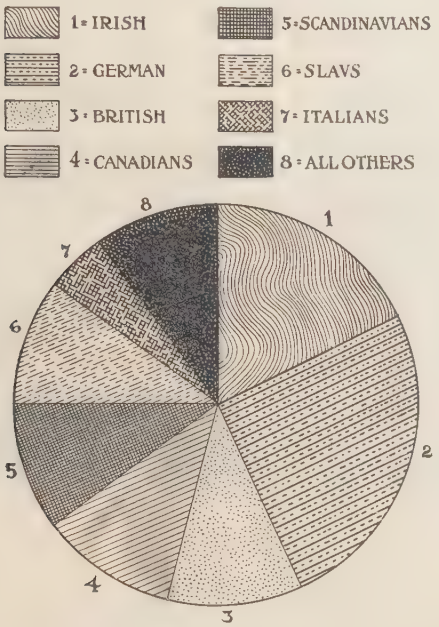


FIG. 326. — A comparison of the foreign-born residents of the United States, according to the nations from which they come. In this figure the space marked 1 represents the native-born Irish living in the United States in 1900; the space marked 2 represents the Germans, etc.

They are called the *Great Powers of Europe*, because they are the most powerful countries on that continent. They are also known as *World Powers*, because they are among the most powerful nations of the world. The United States and Japan are the only other World Powers. The remaining countries of Europe are called the *Lesser Powers*. We will study the Great Powers first.

Review Questions

1. What is meant by Eurasia? By Europe? 2. Where are the mountains found? 3. Name the chief ranges. 4. Describe the large plain. 5. Explain the irregular coast line, and state some of its advantages. 6. What about mineral deposits? 7. What is the latitude of Europe? 8. What about the population, and the farm products? 9. How is the climate influenced by the prevailing west winds? 10. By the abscene of north and south mountain ranges in the west? 11. Why is the climate of southern Europe dry and mild? 12. Why has Europe so many independent countries with separate languages? 13. What about the area and population of Europe? 14. What reasons are there for regarding Europe as the most important continent? 15. Name and locate the Great Powers of Europe. Why also called World Powers?

Suggestions

1. Draw an outline map of Europe. Put in the boundaries of the principal countries. 2. What results might follow, if the mountains of Europe extended north and south near the western coast? 3. Can you tell about any of the great wars and generals of Germany, England, or France? 4. Learn some facts about Napoleon. 5. Can you tell of any of the changes in boundary lines; for example, in Poland, or between France and Germany?

SECTION II. THE GREAT POWERS OF EUROPE

1. The British Isles (Fig. 327)

Map study

1. Walk toward the British Isles. 2. What two large islands do they include? 3. What waters separate these two? 4. Name the three divisions of Great Britain. 5. Locate the Orkney, Hebrides, Shetland, and Channel islands. They are included among the British Isles. 6. What sea lies east of Great Britain? 7. What country on the continent is nearest to Great Britain (Fig. 361)? What waters separate the two? 8. Compare the coast line with that of Spain (Fig. 361); of Norway (Fig. 450). 9. What part of North America is in the latitude of London?

FIG. 328. — Loch Lomond, a beautiful lake on the southern border of the Scottish Highlands.

Why most truly our mother country

Of all the European countries, the one most nearly related to us is the *United Kingdom* of Great Britain and Ireland. It is from these two islands, called the *British Isles*, that we have obtained our English language; and from them, too, a larger number of settlers have come to our shores than from any other country in the world (Fig. 326). Moreover, we carry on more commerce with the United Kingdom than with any other nation.

While, therefore, other European countries have some claim to be called mother countries to us, — since they have sent so many settlers here, — the United Kingdom is most truly of all our *Mother Country*.

The United Kingdom consists of two islands, *Great Britain* and *Ireland*. The larger of these, Great Britain, is made up of three parts — *England*, *Scotland*, and *Wales*. The two islands together are much smaller than our one state of California, but there are nearly half as many people living in them as live in the entire United States. This shows that the British Isles are very densely settled.

The smallness of this kingdom

Its importance

In spite of its small size, the United Kingdom is in many respects the most powerful and the most important country in the world. It carries on more foreign commerce than any other nation; it has more wealth than any other; it has more and larger colonies; and in it is London, the largest city in the world.

There are, of course, excellent reasons why so small a country should have be-

Fig. 329. — Loch Achray, in the Scottish Highlands.

FIG. 330. — Sheep grazing on the mountain slopes in the Scottish Highlands.

come so important. Let us see what they are.

It is certainly not agriculture that has given the United Kingdom its rank. Indeed, in so small a country, one would hardly expect it to be. Even aside from its size, however, there are two reasons why agriculture is not of great importance here.

Why agriculture is not especially important

In the first place, much of the land is too hilly and rocky for farming. This is true, for instance, of the *Scottish Highlands*, which occupy the largest part of Scotland (Figs. 328–330). That is a region of low mountains, so rugged and barren that few people live there. There are low mountains also in northern England and in Wales; and there is a rim of highlands extending almost entirely around Ireland. These mountains rarely rise more than two thousand feet above the sea, and the highest peak in the Islands, Ben Nevis, is only forty-three hundred feet high. Yet, for the most part, they are too high or rugged for farming.

1. The hilly surface

Not all parts of these islands have a rough surface. There are fertile plains and valleys in England and in Ireland; and even in Scotland there is a fertile lowland, called the *Lowlands of Scotland*, which lies south of the Highlands.

In the second place, the islands are so far north that the summer climate is too cool for agriculture. London, for instance, is seven hundred miles farther north than New York; and the British Isles are in the same latitude as Labrador. It is too cool even for wheat raising in the north-

2. The cool climate

FIG. 331. — An English country scene. On the left of the road, bordered by hedges, is a field of wheat; on the right, watercress is being raised.

ern part of the British Isles. Indian corn cannot be grown in any part, nor is grape culture general. Of course, then, such products as cotton, tobacco, and sugar cane are quite out of the question.

However, it is possible to raise the grains and vegetables of cool temperate climates, such as oats, barley, cabbages, turnips, peas, beans, and potatoes. Another crop that thrives here is grass. The winds come mainly from the west, causing a damp climate (Fig. 332); and since they blow from the warm ocean, the winters are not severe. Although the summers are cool, the winters are milder than in northern United States. Therefore, grass remains green throughout most of the year. It is because of its green grass that Ireland is often called the Green, or Emerald Isle.

The farm products

1. Grains, vegetables and grass

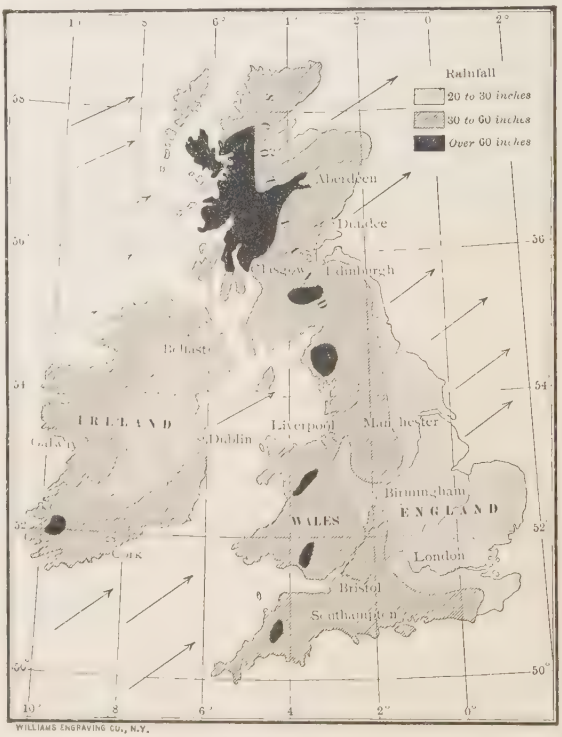


FIG. 332. — Rainfall of British Isles.

Largely on account of the fine grass, the chief agricultural industry of the British Isles is grazing (Fig. 333). There are large numbers of horses and cattle, and still greater numbers of sheep. There are almost as many sheep in the British Isles as there are people, and in Scotland there are five times as many. The British Isles are noted for their fine cattle, sheep, and horses. Some of the breeds of sheep are widely known for their fine wool. The Shetland Islands are famous for Shetland ponies; and on the three Channel Islands, — Jersey, Guernsey, and Alderney, near the French coast — three breeds of cattle have been developed, which are well known in the United States.

2. Live stock

These animals supply many valuable products, such as milk, butter, meat, hides, and wool. Yet far too little food is produced in these islands to feed the people. There are so many persons engaged in other occupations that, if no food came from abroad, they would, it is said, begin to suffer from famine within a month. How different that is from our own country, which has so large an area, and so varied a climate, that it supplies not only the food we need, but enormous quantities to send abroad!

Lumbering and fishing

There is almost no lumbering, for there is scarcely any forest except that in private parks. Almost all the wood used in the British Isles has to be brought from abroad.

Fishing is a very important industry along the coast; also on the fishing banks of the

North Sea, and of the ocean north and west of the islands. Among the fish caught are cod, haddock, and herring, the same kinds that are caught off the coast of New England and Newfoundland. Another important kind is a flatfish, the sole, which resembles the flounder of our eastern coast. These salt-water fish are much used as food by the British people. Salmon enter the rivers of northern Great Britain, and oysters are found along the southern coast.

States and Germany, produce more iron ore. There are also clays, salt, building stones, and other valuable minerals.

Figure 334 shows the sections of Great Britain in which coal is found. While most of the coal is bituminous, that in southern Wales is more like our anthracite. Large numbers of miners in the United States are

FIG. 333. — An English farm with a flock of sheep and a herd of cattle grazing in the pasture.

One of the principal reasons why these islands have made such progress is the abundance of useful minerals that lie buried in the rocks. More than half a million people in the British Isles are engaged in mining.

Mining

The most valuable of the minerals are coal and iron ore, which are widely scattered. The United Kingdom is the second greatest coal-producing country in the world, ranking next to the United States. Only two nations, the United

Welshmen who have come from that section.

None of the British iron ore is far from coal; and in some places the same shaft is used to bring both coal and iron to the surface. Limestone is also abundant and near at hand. This reminds us of the conditions at Birmingham, Ala. (p. 60), which was named after BIRMINGHAM, England. Find Birmingham in Figure 334. Note the other cities near the coal fields. Why should large manufacturing cities develop here?

With plenty of coal and iron, Great Britain has become one of the leading iron and steel manufacturing centers in the world. The products of the factories are used not only at home, but are sent abroad in great quantities.

Manufacturing
1. Iron and steel goods

The leading center for the manufacture of iron and steel is BIRMINGHAM, in England. The next center is in and near Glasgow, in Scotland. The two cities, GLASGOW (Fig. 340) and EDINBURGH, lie in the *Lowlands of Scotland*, a fertile agricultural region, rich in coal and iron. Glasgow is the principal city for steel shipbuilding in the world. SHEFFIELD, a third center for iron and steel manufacturing, has for centuries been noted for its fine cutlery. In the smaller cities and towns near these places, also, there is much iron manufacturing.

The island is so small that coal and iron are easily sent to the coast and are cheaply shipped to all points. Therefore manufacturing is carried on in many places, though it is best developed in the coal fields. Much coal and iron from England and Scotland are sent by boat across the Irish Sea to the coast of Ireland. Largely for this reason the city of BELFAST is also noted for its iron manufacturing, especially for shipbuilding.

FIG. 334.—Map showing coal distribution in British Isles.

FIG. 335.—A country road in England.

2. Woolen goods

The United Kingdom has many other kinds of manufacturing. Vast quantities of wool, for example, are made into woolen goods. In the mountainous section of northern England, near both coal and wool, there are hundreds of factories for the manufacture of woolen cloth. The principal center of this trade is LEEDS, which also has water power. On the west-

ern side of this hilly region is BRADFORD, noted for its broadcloth and its worsted goods; and neighboring cities manufacture woolen yarn, hosiery, carpets, and blankets. The woolen industry extends northward into Scotland and southward to LEICESTER, where the surrounding plains produce a breed of sheep that yields a wool suitable for the manufacture of worsted yarn.

FIG. 336. — Rock of Cashel — Ancient seat of government of Ireland.

In spite of the enormous number of sheep in the British Isles, millions of pounds of wool must be imported every year in order to supply the factories. This reminds us of New England, where much of the wool is brought from the West or from foreign countries.

3. Cotton goods

On the western side of northern England we find a great cotton-manufacturing industry. Dampness is one of the points in favor of that section, for in a dry air cotton is in danger of becoming too brittle to spin and weave easily. Another reason why this work is best developed on the western side of the island is the fact that it is nearer the United States, from which so much of the raw cotton comes.

Since cotton will not grow in the British Isles, it is necessary to import all that is used. Much cotton is now obtained from Egypt, India, and other parts of the British Empire; but our Southern States still supply the greatest quantity. The center of the cotton manufacturing is MANCHESTER. What other cities do you find near by? LIVERPOOL, on the western seacoast, about thirty-five miles from Manchester, is the seaport for this region, and is itself a great manufacturing city.

The central portion of Great Britain, including southern Scotland and the two sides of the mountain range of northern England, is the seat of the greatest textile industry in the world. Can you name cities of New England which are likewise engaged in cotton and woolen manufacture (p. 31)?

The industries connected with cotton, wool, and iron have made Great Britain one of the great workshops of the world. The most important is cotton manufacturing; iron ranks next; and wool is third.

Thus we see that here, as in the United States, coal makes possible an enormous manufacturing industry. There is so much coal in Great Britain that, in spite of the forest of chimneys in England and southern Scotland, more coal is produced than is needed at home. Therefore large quantities are exported. The home production of raw materials for manufacture, however, is not sufficient. All the cotton, much of the wool, and part of the iron ore must be imported; and in addition vast quantities of food for the workmen.

What has thus far been said applies chiefly to Great Britain. Ireland is quite different from Great Britain in several respects. In the first place, it is mainly a country of farms instead of manufactures. The mild climate and damp air insure excellent grass throughout the year, and about four fifths of the farm land is in pasture. Therefore, great numbers of cattle, sheep, and horses are raised. As in Great Britain, the principal grain is oats; but barley, wheat, potatoes, and turnips are grown.

Contrast of Ireland with Great Britain

1. In prominence of its agriculture

Unlike Great Britain, Ireland is very barren of minerals. Building stones, such as granite, marble, and sandstone, are found, but there is almost no coal or iron.

2. In mining

There is, however, an abundance of "turf," or peat, which is used as fuel in the homes. Peat is the woody matter and plant remains that accumulate in swamps, or *bogs*. When dug up and dried, it makes a fairly good fuel. Since about one twelfth of the surface of Ireland is swamp, there is an abundance of this fuel.

On account of the lack of coal, most of the manufacturing in Ireland is done on the eastern side, where fuel is easily obtained from England or Scotland. At one point the two islands are only thirteen miles apart.

3. In manufacturing

One of the leading manufacturing industries is the spinning and weaving of linen which is made from the inner bark, or *fiber*, of the flax plant. Flax is grown in various parts of the United States, but mainly for the seed, from which linseed oil is obtained for use in mixing paints and in making varnish. In Ireland, however, flax is raised chiefly for its fiber. Some of the manufacturing is done in the homes, and some in the cities. BELFAST is specially noted for its linen factories.

Thos. A. O'Shaughnessy.

FIG. 337.—Lough Cutra Castle—Galway County, Ireland.

The stem of flax is tall and slender, and a field of it looks somewhat like a field of oats. Instead of being cut, like grain, it is pulled up and left lying upon the ground for some time, exposed to the weather, so that the gummy substance, which holds the woody matter and the fiber together, may decay.

After the fiber has been separated, it is split and combed out and thus prepared for spinning. It is made into thread in much the same way as cotton and wool are, and this is then woven into napkins, tablecloths, and other fabrics. Name other articles made of linen.

A fourth respect in which Ireland differs from

FIG. 338. — London Bridge across the Thames, over which a stream of people and wagons is almost constantly passing.

Great Britain is in its population. Ireland is far less densely peopled, and the number of inhabitants is becoming less. For many years the Irish have been leaving their country, partly because they have been discontented with their lot, especially with the laws made by the English. Since 1847, the number of inhabitants has been reduced from eight millions to four millions and a half. They have sought refuge chiefly in the United States and Canada.

4. In population

The cities of Great Britain most noted for manufacturing have already been mentioned; namely, LEEDS, BRADFORD, MANCHESTER, SHEFFIELD, BIRMINGHAM, and GLASGOW. What industries are developed in each? Tell where each is located.

Principal cities
1. Their location

There are other large cities along the coast; for great quantities of raw materials and food must be imported, and great quantities of manufactured goods must be exported. These seaports are, therefore, the gateways to and from the island. Since Great Britain lies far north, between Europe and the New World, these shipping points are naturally located on the eastern, western, and southern sides. They are situated at those points where the best harbors exist, and not far from the great industrial centers.

The largest of these cities, and in fact the largest city in the world, is London. It is situated fifty miles from the ocean, as far up the Thames River as high tide allows vessels to go. This is a favorable position for a city because it is in the interior of the island,

2. London
(1) *Its location*

FIG. 339. — The famous Westminster Abbey in London.

and yet is connected with foreign countries by water.

Nearly two thousand years ago the Romans built a fort where London now stands. They had a ferry here for crossing the Thames. A bridge, the first London Bridge, was not built until about eight hundred years ago. This gave the city a great start. Since that time, it has grown until Greater London now includes fully 7,300,000 persons. How does that compare with the number in Scotland? In Ireland? In New York City?

(2) *Early history and present size*

As in all great cities, one of the chief industries is manufacturing. Nearly all kinds of goods are made in London, as in New York, Chicago, and Philadelphia.

(3) *Manufacturing and commerce*

London is the greatest shipping point in the world, being the point of entrance for much of the food for the English. There are docks along the river for a distance of twenty miles, and there are hundreds of great warehouses filled with goods from all climes, including tea, flour, sugar, meat, tobacco, hides, and cocoanuts. Railways extend to all parts of Great Britain, so that these goods are easily distributed.

London is the capital of the *British Empire* (Fig. 344), which is the name given to the United Kingdom and its dependencies. It is a center for the publication of books and magazines, and it has noted picture galleries, libraries, museums, and buildings (Figs. 339, 341, and 346).

(4) *Importance in other ways*

Fig. 340. — Shipping in the busy harbor of Glasgow.

Its wealth and trade are so great that it has long been the leading money center of the world. The principal bank, called the Bank of England, is the agent of the government in much of its business, and employs about a thousand persons.

Southwest of London, on the coast, is Southampton (Fig. 327), where many ocean steamers from the United States stop. Close to Southampton is Portsmouth, which has a great navy yard. Almost due west of London, near the head of Bristol Chan-

3. Other English cities

(1) *In the south of England*

Fig. 341.—St. Paul's Cathedral, London, from the Thames River.

nel, is BRISTOL. It was formerly next to London in size, but Liverpool has now become a far larger city. Just west of Bristol is CARDIFF, in Wales, the chief port for the export of coal.

(2) *In the north*

The two leading seaports in the north of England are LIVERPOOL, on the west side, and HULL on the east side. Hull has trade chiefly with Europe, but Liverpool trades with America and Africa principally.

Before the discovery of the New World, the west side of Great Britain had little commerce. With the settlement of America, however, Liverpool grew until it now has an immense trade, and is third in size among the cities of the United Kingdom. Besides its commerce, Liverpool is also important for its shipbuilding. Why is this a favorable place for such an industry? A ship canal, about thirty-five miles long, has been built to MANCHESTER, at an expense of $75,000,000.

GLASGOW (Fig. 340), on the west side of the Lowlands of Scotland, is second to London in size among British cities. It is a leading manufacturing center and shipping point, and has a flourishing trade with America.

4. Cities of Scotland

EDINBURGH (Fig. 342), the capital of Scotland, and one of the most beautiful cities in the British Isles, is quite unlike the other large cities named. It is not important either as a shipping point or as a manufacturing center. In former days, before Glasgow had commerce with America, Edinburgh was much more important than Glasgow; for it commanded the eastern entrance to the Lowlands of Scotland. It still has extensive trade, and is a noted educational center. LEITH, a short distance away, is the port for Edinburgh.

FIG. 342. — The city of Edinburgh.

Farther north, on the coast, are DUNDEE and ABERDEEN. The former sends a number of whaling vessels to the Arctic Ocean each year, and is also engaged in the manufacture of linen. Aberdeen has many manufacturing industries.

The principal cities of Ireland are on

the east and south sides. What has already been said about BELFAST (p. 244)?

5. Cities of Ireland

DUBLIN (Fig. 343), the capital of Ireland, and the chief port for the English trade, ships farm and other products to England and receives manufactured goods in return. QUEENSTOWN has a fine harbor, and is a port of call for vessels bound from America to Great Britain.

Commerce

Many millions of people are employed in manufacturing and other industries in the British Isles. They produce so much cloth, iron goods, and so many other articles, that the British people cannot possibly use all of them. A market for them must be found in other countries.

On the other hand, it is necessary for the British people to import much of the food that they eat. It is impossible to raise it all on these two small islands, just as it would be impossible to raise enough for the people of a city within the city limits. Besides food they must also import much wool, cotton, and other raw products for manufacturing.

The export of so many goods, and the import of so many others, gives rise to an enormous amount of trade. This makes the transportation of goods of the greatest importance. Partly for these reasons the United Kingdom has more ships than any other nation in the world, and they sail to every important port on the earth.

Having many ships, it has been easy for the British people to explore all parts of the earth. Also, having to sell so many goods abroad, and to buy so much food abroad, it has been natural for the British nation to take possession of newly discovered lands.

British colonies

FIG. 343.— A street scene in Dublin.

In this way the United Kingdom has come into possession of Canada, Australia, India, several large countries in Africa, and scores of islands and smaller possessions (Fig. 344). These are called *colonies*, and the British have more of them than any other nation in the world. You will remember that our own country was an English colony before our War of Independence.

The British colonies are one hundred times as large as the British Isles themselves, and have ten times as many inhabitants. These colonies help greatly to make the United Kingdom a World Power, both by their trade and by their support in times of danger.

BRITISH EMPIRE
United Kingdom thus:
Dependencies, thus.
SCALE ALONG THE EQUATOR
0 1,000 2,000 3,000 4,000 5,000
STATUTE MILES
ARCTIC OCEAN
GREENLAND
ALASKA
NORTH AMERICA
DOMINION OF CANADA
Hudson Bay
LABRADOR
NEWFOUNDLAND
Ottawa
San Francisco
UNITED STATES
New York
BERMUDAS
BAHAMAS
Havana
BRITISH HONDURAS
JAMAICA
LEEWARD IS.
WINDWARD IS.
BARBADOS
TRINIDAD
Panama
BRITISH GUIANA
Equator
SOUTH AMERICA
Tropic of Cancer
Tropic of Capricorn
Rio Janeiro
Valparaiso
Buenos Ayres
FALKLAND IS.
Cape Horn
SOUTH GEORGIA
Antarctic Circle
Longitude West from Greenwich
Longitude East from Greenwich
ATLANTIC OCEAN
PACIFIC OCEAN
JOHNSTON I.
PALMYRA I.
WASHINGTON I.
FANNING I.
CHRISTMAS I.
KERMADEC IS.
CHATHAM IS.
DUCIE I.
PITCAIRN I.
ICELAND
BRITISH ISLES
EUROPE
Berlin
Vienna
Paris
Gibraltar
MALTA
Cairo
EGYPT
AFRICA
GAMBIA
SIERRA LEONE
GOLD COAST
ASHANTI
NIGER TERRITORIES
Portuguese Angola
ASCENSION I.
ST. HELENA
WALFISCH BAY
ICHABOE I.
TRISTAN DA CUNHA
Cape of Good Hope
BRITISH S. AFRICA
RANSVAAL COLONY
ORANGE RIVER COLONY
NATAL
CAPE COLONY
INDIAN OCEAN
Aden
BRITISH SOMALILAND
BRITISH EAST AFRICA
ZANZIBAR I.
ALGABRA IS.
CARGADOS IS.
RODRIGUEZ I.
MAURITIUS
ASIA
RUSSIAN EMPIRE
FRANZ JOSEF LAND
ARCTIC OCEAN
SIBERIA
Peking
Wei-hai-wei
JAPAN
CHINA
Hongkong
PHILIPPINE ISLANDS
INDIA
Bombay
Calcutta
ANDAMAN
NICOBAR IS.
CEYLON
MALDIVE IS.
STRAITS SETTLEMENTS
SINGAPORE
LABUAN
NORTH BORNEO
Sarawak
NEW GUINEA
CHAGUS IS.
CHRISTMAS I.
COCOS OR KEELING IS.
AUSTRALIA
Melbourne
Sydney
TASMANIA
NEW ZEALAND
NORFOLK I.
LORD HOWE I.
ROYAL COMPANY IS.
AUCKLAND I.
CAMPBELL I.
MACQUARIE I.
EMERALD I.
ANTIPODES I.
WILLIAMS ENGRAVING CO., N.Y.

FIG. 344.

Great Britain and Ireland, together with the colonies, form the *British Empire*. Its government, unlike our own, is a monarchy, and the name of the present king is George V (Fig. 345). It is not an absolute monarchy, however, for the people have an important share in making the laws, as in our own country. They elect representatives to *Parliament*, which meets in London (Fig. 346), and corresponds to our Congress at Washington.

The British Empire and its form of government

Fig. 345. — George V, King of England.

There are two bodies forming Parliament, one called the House of Lords, the other the House of Commons. The *House of Lords* is made up of members of the nobility, or men with inherited titles, who are not elected by the people. The *House of Commons*, whose members are elected by popular vote, has far greater power in making laws than the House of Lords.

Fig. 346. — The Parliament building in London, with the Thames River in front.

1. Review Questions

1. Give reasons for regarding the British Isles as our mother country. 2. What are the parts of the United Kingdom? What about their area and population? 3. In what respects is this country especially important? 4. Give two reasons why agriculture is not very prominent. 5. Where is the land hilly? Where are there lowlands? 6. Name the main farm products. 7. Tell about the raising of live stock on these islands. 8. What about lumber and fishing? 9. What important minerals are found? 10. What can you tell about iron and steel manufacturing? 11. Woolen goods? 12. Cotton goods? 13. How does Ireland compare with Great Britain in prominence of agriculture? What are the farm products of Ireland? 14. How does Ireland contrast with Great Britain in mining? 15. In manufacturing? Describe the chief manufacturing industry. 16. What about the population of Ireland? 17. Where are the principal cities of the British Isles located? 18. Tell further about the location of London. 19. Its early history and present size. 20. Its manufacturing and commerce. 21. Its importance in other ways. 22. Locate and state the important facts about other cities in the south of England. 23. In the north. 24. Tell about the leading cities of Scotland. 25. Of Ireland. 26. Why have these islands so much commerce? 27. Why have they so many colonies? 28. Locate the principal colonies. 29. What is meant by the British Empire, and what is its form of government?

2. Suggestions

1. Name some early English explorers who took part in the exploration of North America. 2. What names of British cities have you met in your study of the United States? In what portions of the United States are they? 3. What books have you read whose authors lived in the British Isles? 4. What are the people from each of the four parts of these islands called? 5. What waters surround the British Isles? 6. Make a sketch of the British Isles, putting in the chief cities. 7. Suppose that you are now in London; point to Wales, Scotland, Ireland, the United States.

2. German Empire (Fig. 347)

Map study

1. Compare the latitude of Berlin with that of New York (Fig. 520). 2. Of London (Fig. 318). 3. Estimate the greatest length of Germany from east to west (Fig. 347); from north to south. 4. How does Germany compare in size with the British Isles? 5. With Texas? 6. What parts of the boundary are natural? 7. Name and trace the principal rivers. 8. Point out the mountainous sections. 9. What facts do you notice about the coast line? 10. Which probably has the better seaports, the North Sea or the Baltic Sea? Why?

Rank among the World Powers

In industry, in commerce, and in other ways Germany is one of the leading nations of the world, ranking among the first three of the World Powers. The two others that rival or surpass Germany are the United States and the United Kingdom.

States forming the Empire

Germany has reached this high rank only very recently. For until the year 1871 the region marked German Empire on the map was divided into many parts more or less independent of one another, and often at war with one another. In 1871, just after a war with France, these different parts were united to form the German Empire, which is now made up of twenty-six states. The smallest of these is the Free Town of Bremen, which contains only ninety-nine square miles. How does Bremen compare with Rhode Island in area? By far the largest state is Prussia, which includes more than half the empire. It is, however, smaller than our own state of Montana.

Form of government

These states are united under a central authority, more closely than our states. Instead of a President they have an Emperor, called the *Kaiser*, who, according to law, must be the King of Prussia. As in the United Kingdom, the power of the Kaiser is limited, for there is a legislature with

GERMAN EMPIRE
THE NETHERLANDS
AND
BELGIUM
Scale of Miles
0 25 50 100 150
BERLIN
Hamburg
Cologne
Dortmund
Lubeck
LUXEMBURG
Longitude East from Greenwich
NORTH SEA
BALTIC SEA
SWEDEN
Copenhagen
Lund
Malmo
Veile
Fredericia
Blaavands Huk
Apenrade
Flensburg
Schleswig
Kiel
Kiel Bay
Kiel Canal
Kendsburg
Neumünster
Odense
FUNEN
Svendborg
Nästved
SEELAND
MOEN
BORNHOLM
Rönne
Nakskov
LAALAND
Kjöbing
FALSTER
FEHMARN
RÜGEN
Stralsund
Rostock
Greifswald
Lübeck Bay
Wismar
Pomeranian Bay
Kolberg
Köslin
Stolp
Danzig
Gulf of Danzig
Königsberg
Pregel R.
Tilsit
Cranz
Insterburg
Braunsberg
Elbing
Marienburg
Dirschau
Marienwerder
Konitz
Allenstein
Osterode
Graudenz
Kulm
Thorn
Lyck
Neustettin
Stargard
Schneidemühl
Bromberg
Inowrazlaw
Gnesen
Posen
Schrimm
Lissa
Krotoschin
Kawitsch
Glogau
Warsaw
Lodz
Vistula R.
Warthe R.
Oder R.
Netze R.
Itzehoe
Altona
Hamburg
Elbe
Stade
Bremerhaven
Harburg
Lüneburg
Bremen
Weser R.
Emden
Leer
Oldenburg
Ems R.
Lingen
Nienburg
Minden
Osnabrück
Salzwedel
Celle
Stendal
Wittstocke
Wittenberge
Anklam
Swinemünde
Stettin
Prenzlau
Neu Strelitz
Neu Ruppin
Schwedt
Oder R.
Spandau
Potsdam
Charlottenburg
BERLIN
Brandenburg
Landsberg
Cüstrin
Frankfort
Schönberg
Rixdorf
Hanover
Brunswick
Hildesheim
Magdeburg
Halberstadt
Stassfurt
HARZ MTS
Göttingen
Bielefeld
Paderborn
Münster
Osnabrück
Wittenberg
Dessau
Cottbus
Guben
Forst
Sagan
Torgau
Halle
Leipzig
Bautzen
Dresden
Görlitz
Liegnitz
Breslau
Hirschberg
Schweidnitz
Brieg
Oppeln
Neisse
Gleiwitz
Königshütte
Kattowitz
Cracow
Prague
Zittau
Chemnitz
Zwickau
Plauen
ERZGEBIRGE
Weissenfels
Altenburg
Gera
Mühlhausen
Erfurt
Weimar
Gotha
Cassel
Fulda
Meiningen
Hanau
Offenbach
Darmstadt
Mainz
Worms
Würzburg
Bamberg
Bayreuth
Hof
Coburg
Fürth
Nuremberg
Ansbach
Regensburg
Straubing
Passau
Landshut
Ingolstadt
Augsburg
Munich
Rosenheim
Kempten
Oberammergau
Salzburg
VIENNA
Brünn
BOHEMIA
AUSTRIA
HUNGARY
Danube R.
Inn R.
Lake Constance
Constance
Basel
SWITZERLAND
Mainz
Wiesbaden
Frankfort
Mannheim
Heidelberg
Heilbronn
Karlsruhe
Pforzheim
Rastatt
Baden
Stuttgart
Rottlingen
Ulm
Freiburg
Mülhausen
Strassburg
Nancy
Metz
Saarbrücken
Kaiserslautern
Ludwigshafen
Trier
LUXEMBURG
Aachen
Cologne
Bonn
Koblenz
Mainz
Wiesbaden
Frankfurt
Hanau
Dortmund
Bochum
Essen
Gelsenkirchen
Mülheim
Elberfeld
Barmen
Düsseldorf
Krefeld
Duisburg
Oberhausen
Nijmegen
Arnhem
Utrecht
Amsterdam
Haarlem
Zaandam
Hoorn
Zuider Zee
Apeldoorn
Deventer
Enschede
Zwolle
Meppel
Leeuwarden
Groningen
Sneek
Helder
TEXEL
VLIELAND
WEST FRIESIAN IDS.
TERSCHELLING
AMELAND
SCHIERMONNIKOOG
NORDERNEY
EAST FRIESIAN IDS.
HELIGOLAND
NORTH FRIESIAN IDS.
The Hague
Leyden
Delft
Gouda
Schiedam
Rotterdam
Dordrecht
Flushing
Bergen-op-Zoom
Breda
Tilburg
Antwerp
Mechlin
Louvain
Brussels
Ghent
Bruges
Ostend
St. Nicolas
Alost
Courtrai
Tournai
Lille
Mons
Namur
Charleroi
Liège
Verviers
Maestricht
Malmedy
Bastogne
Iheims
Mézières
Sedan
Verdun
Nancy
Metz
Strassburg
Colmar
Basel
Constance
Rhine R.
Meuse R.
Moselle R.
Saar R.
Main R.
Neckar R.
Danube R.
Inn R.
Lake Constance
Kiel Bay
Wismar
Lübeck
Stettin
Danzig
Königsberg
Warsaw
Lodz
Breslau
Dresden
Leipzig
Chemnitz
Prague
Cracow
Brünn
VIENNA
Munich
Nuremberg
Frankfurt
Cologne
Brussels
Antwerp
Amsterdam
The Hague
Rotterdam
Hamburg
BERLIN
Cities with over 2,000,000
Cities with 500,000 to 1,000,000
Cities with 200,000 to 500,000
Cities with 100,000 to 200,000
Capital
Other Cities
Wickersham Engraving Co., N.Y.

FIG. 347.

two houses, one called the *Reichstag*, which is elected by the people. The form of government is, therefore, a limited monarchy. The present Kaiser is Emperor William II (Fig. 348).

Area and population

Germany contains two hundred and nine thousand square miles, being twice the size of Colorado, though much smaller than Texas. It has more than sixty million inhabitants, or about two thirds as many as the entire United States.

Position of country

1. Advantages of the position

The position of the German Empire is very different from that of Great Britain. Only about one third of its boundary is water, while seven independent countries, besides Luxemburg (Fig. 347), are on its borders. What are their names?

FIG. 348. — William II, the Emperor of Germany.

The location of the British Isles is favorable for world commerce, because densely populated Europe lies on one side, and the New World on the other. Germany is the most centrally situated of the European countries, and therefore can easily trade with all parts of the continent. Further, two of her principal ports, HAMBURG and BREMEN, face Great Britain and the New World. Name some of the large European cities (Fig. 318) that can be quickly reached from Germany. In these days of railways, Germany's central position is superior to that of England for European trade.

2. Its disadvantages

On the other hand, there are serious disadvantages in this position, for the many near neighbors have caused much trouble. Notice what an irregular boundary Germany has. Mountains form a part of the southern border, and water the northern; but the eastern and western limits have been largely decided as a result of war with neighbors. That is why the boundary is so irregular and so artificial. Draw an outline map of Germany.

In order to keep the present boundaries the Germans must be prepared to defend them at any time. This need calls many citizens to an occupation that has not thus far been considered in this book; namely that of *preparing for war*. Each of the great European nations is ever watching the others; and since no one of them knows how soon a dispute may arise with its neighbor, each keeps a large and thoroughly prepared army and navy.

Able-bodied young men in Germany are required usually to devote two full years, and parts of several following years, to active train-

ing as soldiers. Most of them enter the service at about the age of twenty; and since half a million men reach that age every year, you can get some idea of what such training costs.

Strong forts are built near the boundary, as at Cologne, Metz, and Strassburg on the French side, and Königsburg and Posen near Russia. Forts are also numerous at the seaports, in the neighborhood of the great interior cities along the rivers, and at other important points. The United Kingdom, being surrounded by water, depends mainly upon a navy for defense. Germany also is building a great navy as well as training a mighty army. Preparation for war is one of the great occupations of Europe to-day, and no nation is giving more attention to it than Germany.

Fig. 349. — A view on the low level plain of north Germany.

Agriculture is much more important in Germany than in the British Isles. This is due partly to the fact that there is in Germany a very large amount of land suited to farming. Even in the south, where there are mountains, there are many fertile valleys. Central Germany is a low, hilly plateau with low mountains rising above it in a few places. There is much good farming land in this section; and there is still more in northern Germany which is almost wholly a lowland (Fig. 349), very low and flat near Holland and gently rolling in other parts. This is a part of the great plain of northern Europe, already mentioned (p. 233).

Why more agriculture than in England

1. Amount of good farm land

Fig. 350. — Vineyards on the steep slope of the Rhine Valley near Bingen. The land is terraced here and the small patches of vineyard are inclosed within walls of rock.

The climate also is more favorable to agriculture. A large portion of the Empire is south of the southern portion of England, and no part extends so far north as northern England.

2. Climate

In addition, Germany is less under the influence of the ocean, so that the summer climate is warmer than

FIG. 351. — German peasants carrying grapes from a vineyard.

that of Great Britain. This allows several important crops to be raised in Germany that cannot be grown in the United Kingdom. There is plenty of rain in all parts of Germany, as there is in the British Isles.

3. Farm crops

Among the chief farm products are the grains, — rye, oats, barley, and wheat. Far more rye is raised than wheat, and rye flour, used in making "black bread," is a common food of the German people. Almost no corn is grown, partly because the Germans have not learned to use this grain and partly because in most parts the summers are not hot enough, although they are warmer than in England. Grapes and tobacco, neither of which can be produced in Great Britain, are raised in large quantities (Figs. 350, 351). Potatoes, which were introduced into Europe from America, are a very valuable crop, forming one of the chief foods of the people.

The Germans have so improved the beet as to produce a new kind, known as the *sugar beet*, from which sugar is made. Hops, used in the manufacture of beer, are cultivated extensively, and great quantities of hay also are raised.

FIG. 352. — A view in the Black Forest, one of the low mountain regions of southern Germany.

Much of the lowland is too sandy for cultivation, and much of the highland is too rugged. A large part of such land is used for pasturage, and thus one sixth of the surface is natural pasture. Cattle for beef and for dairy purposes are kept in nearly all parts of the empire, but especially in the damper climate near the sea. Largely because wool can be imported so cheaply, the raising of sheep in Germany is a much less important industry. Swine raising, on the other hand, is increasing because of the cheap feed supplied by the refuse from the beet-sugar factories. Horses are raised in all parts of the empire, and many goats are kept, especially in the mountains.

4. Live stock

Along the coast, especially in the North Sea, there is much fishing; but it is the least important among the prominent industries.

Fishing

There is much more forest land in Germany than in Great Britain, about one fourth of the empire being wooded. These trees are grown on lands that are not suited to farming or pasturage (Fig. 352). They are found especially on the sandy plains of the northern lowland, and in the mountainous sections of central and southern Germany (Fig. 352).

Extent of forests, and their care

The good sense of the German people is well shown by the way they treat their woodlands. Instead of wastefully destroying them by fire and the ax, — as has been done in so many parts of our country, — the Germans have developed an excellent system of forest culture. Trees are planted in place of those that are cut for timber, and they are given proper care, so that the woods continue to be abundant. In this way the forest is made to yield a profit every year, just as a farm does. Germany produces a large part of the lumber she uses, and also exports a large amount. She exports also many valuable products manufactured from the forest trees.

It is partly the example of the Germans that has led our own country, at last, to begin to pay attention to the care of our forests.

Next to the United Kingdom, Germany is the greatest mining country in Europe, although each is far behind the United States in this industry. In the western part of Germany, in the neighborhood of COLOGNE and AACHEN, coal is abundant; and from this section eastward to the Russian border there are several important coal fields. As in our own country and in England, there is valuable iron ore, some of it near the coal mines.

Mining

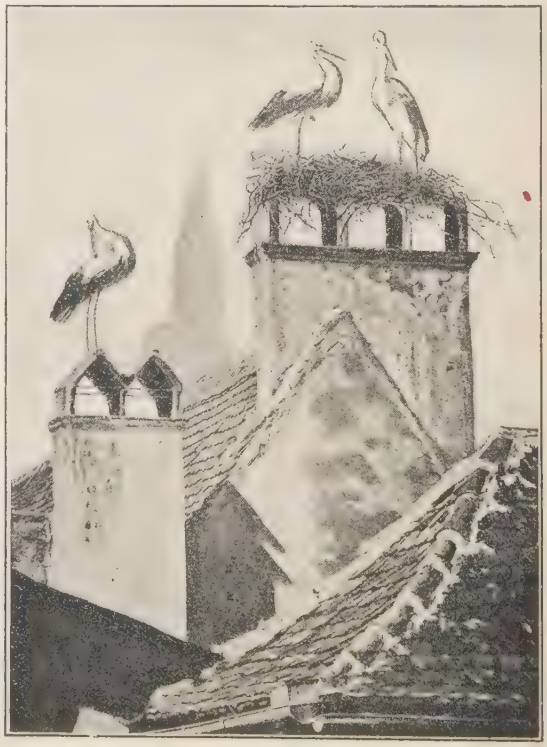


FIG. 353. — Storks in Strassburg, where they build their nests on the chimney tops.

Among the other valuable mineral products are lead, copper, silver, zinc, and salt. Nearly half the silver mined in Europe comes from Germany; and Belgium and Germany together produce more zinc than all the rest of the world. There are immense salt mines at STASSFURT, and there are valuable clays, cement materials, and building stones.

MAP OF THE WORLD
showing possessions of
UNITED STATES, GERMANY, FRANCE
and THE NETHERLANDS
United States
Germany
France
The Netherlands
ARCTIC OCEAN
ATLANTIC OCEAN
PACIFIC OCEAN
INDIAN OCEAN
NORTH AMERICA
UNITED STATES
SOUTH AMERICA
EUROPE
ASIA
AFRICA
AUSTRALIA
GREENLAND
ALASKA
CUBA
PORTO RICO
CURAÇAO
GUADALOUPE
MARTINIQUE
DUTCH GUIANA
FRENCH GUIANA
HAWAIIAN ISLANDS
MIDWAY I.
HOWLAND I.
BAKER I.
JUEA I.
SAMOA IS.
TUTUILA
MANUA
SOCIETY IS.
TAHITI
MARQUESAS IS.
TUAMOTU OR LOW ARCHIPELAGO
GAMBIER IS.
HORNE IS.
AUSTRAL IS.
RAPA I.
NETHERLANDS
GERMANY
FRANCE
CORSICA
TUNIS
ALGERIA
Sahara
SUDAN
SENEGAL
FRENCH GUINEA
IVORY COAST
KAMERUN
FRENCH KONGO
EQUATOR
GERMAN EAST AFRICA
NUSSI BE
COMORO IS.
MAYOTTE
STE MARIE
REUNION I.
MADAGASCAR
GERMAN SOUTHWEST AFRICA
FR. SOMALILAND
INDIA
Yanaon
Pondichery
Mahe
Karikal
SUMATRA
BORNEO
CELEBES
MOLUCCA IS.
DUTCH EAST INDIES
JAVA
TIMOR
NEW GUINEA
KAISER WILHELMS LAND
BISMARCK ARCH.
SOLOMON IS.
HUON I.
LOYALTY IS.
NEW CALEDONIA
CHESTERFIELD IS.
CAROLINE IS.
MARSHALL IS.
GUAM
MARIANA IS.
WAKE I.
MARCUS I.
PHILIPPINE IS.
PELEW IS.
TONKIN
ANAM
COCHIN CHINA
Kwang-chau-wan
EMPIRE
CHINESE
JAPAN
Scale along the Equator
0 1000 2000 3000 4000 5000
Statute Miles
WILLIAMS ENGRAVING CO., N.Y.
160° 140° 120° Longitude 100° West 80° 40° Longitude 60° East 80° 100° 120° 140° 160° 180°

FIG. 355.

The Germans make use of the most scientific methods in their mining work; and other nations have learned from them many of the methods used in reducing ores to metal.

With abundant coal, iron ore, and other raw materials, Germany has become a great manufacturing country. Among European nations Germany ranks next to the United Kingdom in manufacturing.

Manufacturing

The position of the coal and iron mines accounts for the location of the principal centers for iron manufacturing. The busiest section is along the Rhine, in the vicinity of COLOGNE; and this region may well be compared with northern England in the extent of its industries. A second center is the vicinity of DRESDEN and CHEMNITZ; and a third is at BRESLAU in the southeastern corner of the empire.

1. Leading centers of manufacturing

FIG. 354. — A German peasant girl spinning wool.

The map (Fig. 347) shows no cities south of BRESLAU; yet this is a busy manufacturing region. Cities are lacking here because the people carry on the manufacturing mainly in their own homes, instead of in factories. Therefore, although villages stretch for miles along the valleys, there are no large towns.

The textile industries are best developed near the coal fields. Therefore the sections mentioned above are noted for cotton, woolen, and silk factories, as well as for iron. All the cotton and silk, and much of the wool, for these textile industries comes from abroad.

2. Leading kinds of manufacturing

(1) *Textile and iron goods*

The extensive forests partly account for a third occupation in many sections; namely, the manufacture of furniture, paper, and other materials made of wood. Wood carving is an important industry in the Black Forest and other parts of Germany.

(2) *Lumber and lumber products*

The manufacture of spirituous liquors is another prominent German industry. A portion of the immense potato crop, and some of the beets, are made into spirits. But beer, in the manufacture of which barley and hops are used, is made in much greater quantities. From the grapes of southern Germany much wine is produced.

(3) *Beverages*

Germany is also a great sugar-manufacturing nation. Until a few years ago nearly all sugar was obtained from sugar cane; but this was changed when the Germans found a means of making sugar from beets. This industry has now spread to many countries, including the United States.

(4) *Beet sugar*

Because of its extensive agriculture and its forests, Germany is far more independent in regard to materials for food, clothing, and shelter than is Great Britain. Yet, like Great Britain, Germany has a very

Commerce

dense population, and some of the things that she greatly needs cannot be raised at home. All of the cotton, much of the wool, and much food, especially meat and grain, must be imported. What countries that you have studied might send these articles to Germany?

Germany exports a great amount of sugar, wine, beer, textile goods, and iron and steel goods. Like the United Kingdom, Germany has important colonies (Fig. 355), although they are not nearly so extensive as those of the British. Her trade with these colonies, which are mainly in Africa, is of considerable value; but commerce with other countries is far more important.

For transportation of goods from one part of the Empire to another, Germany is greatly favored by her rivers. From the map, you will see that most of them flow northward. What rivers do you find? Trace their courses. Navigation is possible upon all of these, but it is most extensive on the Rhine (Fig. 360). Boats can ascend this stream all the way from the sea to the boundary of Switzerland. How far is that? The Elbe is navigable into Austria. You can see how very valuable these rivers must be in carrying goods across the Empire. There are also many canals and railroads which extend to all parts of Germany and to other parts of Europe.

Great centers of population

1. Berlin

(1) *Its location*

The capital and the largest city in Germany is BERLIN, situated on the small Spree River on the North German plain, midway between the coast and the highlands. This position may not at first seem a very favorable one. However, the Oder, a large river, and some of the tributaries of the Elbe, approach so near each other in this section that they have been connected by canal. Thus, Berlin has water connection with both HAMBURG and STETTIN, two important seaports, and with all parts of these two river systems. This is a very important aid in bringing fuel, food, and raw materials for manufacture, and in taking away manufactured articles.

Berlin also lies on the direct route from Hamburg to Breslau, and from Stettin to Leipzig; and other large cities surround it. It is, moreover, on the route of several of the chief European railways, and is therefore one of the leading railway centers of the continent.

With such excellent connections, by water and by rail, Berlin, besides being the capital of the empire, has become one of its principal manufacturing cities. Fully half the residents are supported by manufac-

(2) *Its importance*

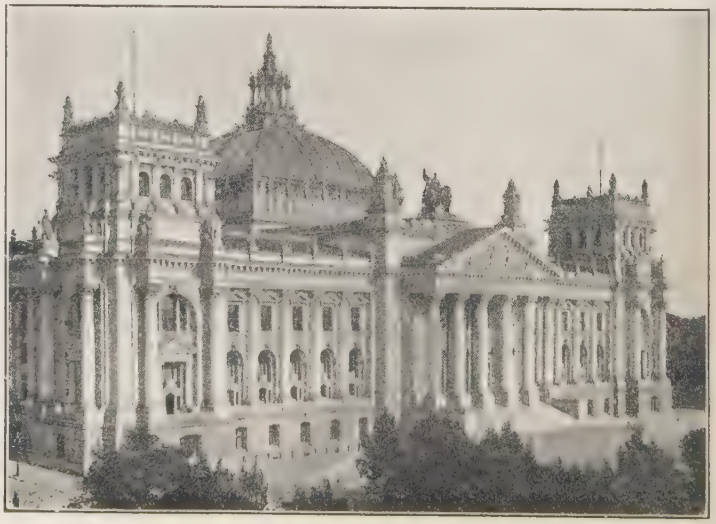


FIG. 356. — The Building in Berlin where the German Parliament meets.

turing. Berlin is the center of German banking. It is noted for its art and music, and for its great university, the largest in the empire. It is a beautiful city, with many palaces, parks and fine public buildings (Fig. 356). There are several suburbs, among them POTSDAM, which has royal palaces.

Among the cities not far from Berlin is LEIPZIG, the fifth largest in the empire. Formerly it was at the crossing of important wagon roads, and now it has become a railway center. Leipzig is, next to Berlin, the most important trade center of Germany. One of its leading articles of commerce is fur. It is also a center for the German book trade.

2. Interior cities near Berlin
(1) *Leipzig*

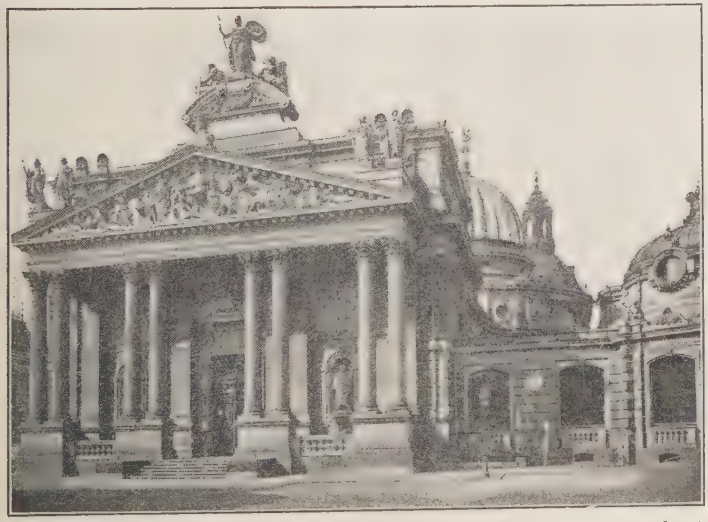


FIG. 357. — The Dresden Art Museum which contains many treasures of art.

DRESDEN, southeast of Leipzig, is noted for its art museum (Fig. 357), in which there are many wonderful paintings. The beautiful Dresden china is made in this vicinity, and there is much other manufacturing; for Dresden is situated on the navigable Elbe and has coal near at hand. It is, moreover, the capital of SAXONY, the most densely settled German state.

(2) *Dresden*

CHEMNITZ, near by, has important textile industries. HALLE and MAGDEBURG, farther to the northwest, and in the center of the chief beet growing section, are extensively engaged in the manufacture of sugar.

(3) *Chemnitz, Halle, and Magdeburg*

BRESLAU, a city not much smaller than Leipzig, is on the Oder, a navigable river. It has the advantage of being near a very rich coal and iron field, and is, therefore, a great manufacturing center. Its location, near the Russian frontier, makes it an important market for eastern and central Europe.

(4) *Breslau*

On the plateau of southern Germany is MUNICH, the capital of the kingdom of BAVARIA. Although so far south, and so distant from coal, Munich is the third city in size in the empire. It is on the trade routes from Germany to Italy and Austria, and is therefore an important railway center. Much of its renown is due to its art collections and its art industries, such as work in bronze, gold, silver, glass painting, and porcelain manufacturing.

3. Munich and Nuremberg

North of Munich, on the road to Berlin, is NUREMBERG. This quaint city was famous in former centuries for its art and architecture, and many of its treasures are still carefully preserved. At present it is an important center for the manufacture of toys.

HAMBURG is the second city in Ger-

many and the most important seaport on the continent. Name some articles from the United States that probably enter this port.

4. Seaports

Bremen and Stettin also admit large vessels, and are the chief rivals of Hamburg; but they together have less than one half as much commerce as Hamburg. In what respects is the situation of Hamburg more favorable to commerce than that of Stettin? Name other Baltic ports besides Stettin. Estimate the distance saved to the Baltic ports by the cutting of the Kaiser Wilhelm Canal, south of Denmark, which is sixty-one miles in length. What city is at the eastern end of this canal?

On ascending the Rhine into Germany we come to the greatest manufacturing region of the empire. What cities are found there? Cologne, the largest, with a population of nearly a half million, is on the river bank. It is a great shipping point, since railways cross the river here, and boats from London and other places are able to ascend to this point.

5. Cities along the Rhine River

(1) *Cologne and vicinity*

Near Cologne are Elberfeld and Barmen, which have textile manufactories; Essen, which is famous for its steel works; Krefeld, which is an important silk-manufacturing town; and Aachen (Aix-la-Chapelle in French) which manufactures woolen cloth.

Just beyond the chief bend in the Rhine is Frankfurt, on a navigable tributary, the Main. The easiest route from the Rhine Valley to the Danube lies along this tributary; and the railway from the German plain to the upper Rhine passes Frankfurt. This city is therefore a center of important trade routes. For this reason it is one of the chief trading and banking centers in Germany.

(2) *Frankfurt*

The Rhine, the most important river in Germany, is often compared with the Hudson. In both rivers there are sections that are shut in by high, rocky cliffs, well wooded to the top. The Rhine, however, is much narrower than the Hudson, so that these walls seem loftier; and since the stream is more winding, at some points they stand out more boldly, as if in the very path of boats, to bar their further progress.

The Rhine and the Hudson compared

1. In scenery

Fig. 358.—The Cologne Cathedral, one of the most famous churches in Europe.

When one journeys along the more beautiful portion of the Rhine, a fine old castle often comes into view, as a turn in the river reveals an especially bold cliff (Fig. 360). Sometimes

FIG. 359.—Some of the quaint houses in the ancient city of Frankfurt.

several such relics of the past may be seen from a single point on the river. Many of these are in ruins, but now and then one is seen that is still kept up as a residence. The Hudson lacks such castles, although there are many fine residences along its lower course.

FIG. 360.—The Rhine River in Germany. Notice the castle perched on the hilltop on the left, and the vineyard in the front of the picture.

There are many terraced vineyards on the sloping hillsides bordering the Rhine (Fig. 350), and likewise many a quaint village built on a narrow strip of flood plain between the river and the cliff (Fig. 360). Since the Rhine has more large tributaries than the Hudson, there are more wild glens on the sides, and more broad, wooded valleys, which open up charming views from the river. The openings in the valley walls, where these tributaries enter, are favorite sites for towns.

The Rhine, like the Hudson, is a busy highway of commerce. Vessels are going at all times, heavily

laden with merchandise. It is even more busy than the Hudson. It is more densely populated too, with cities, towns, and villages all along its banks. There is, however, no such vast population at its mouth as is found at New York City. What is the name of the city at the mouth of the Rhine?

2. In commerce and population

1. Review Questions

1. What is the rank of Germany among the world powers? 2. State some facts about its form of government. Also about the number of German states, and their size. 3. What is the area of Germany? 4. The population? 5. How is the position of the country of advantage? 6. Explain some of the disadvantages of the position. 7. What can you say about the amount of good farm land? 8. About the climate? 9. Name the principal farm crops. 10. The main kinds of live stock. 11. What portions of the empire are covered with forest? What care is given to these forests? 12. Tell about the mining. 13. Name and locate the leading manufacturing centers. 14. Name the principal kinds of manufacturing, and state some facts about each. 15. Name Germany's chief imports and exports, giving reasons. 16. How is transportation within the empire provided for? 17. Give the leading facts about Berlin. 18. Leipzig. 19. Dresden. 20. Other interior cities near Berlin. 21. Munich and Nuremberg. 22. The seaports. 23. Cities along the Rhine River. 24. Compare the Rhine with the Hudson in scenery. 25. In commerce and population.

2. Suggestions

1. Find in an atlas in what parts of the empire the larger states, such as Prussia, Bavaria, Saxony, etc., are situated. 2. People often assert that the peace of Europe is preserved by careful preparation for war; in what sense can this be true? 3. What must be some of the benefits of two years of active training in the army, aside from preparation for war? What are some of the disadvantages? What relation has this had to emigration? 4. What is the size of our standing army? Why so small? 5. What seaports of Europe most nearly approach Hamburg in size? 6. How might the Kaiser Wilhelm Canal possibly prove an injury to Hamburg? 7. Find out something about Goethe; Schiller; Humboldt; Emperor William the First; Bismarck; Von Moltke; Wagner; Schumann. 8. Make a collection of photographs from Germany. 9. Make a drawing of Germany, including the principal rivers and cities. 10. Write the names of the countries on its boundary.

3. France (Fig. 361)

Map study

1. France is the nearest country to the British Isles. Estimate the distance between the two (Fig. 361). 2. Compare the two countries as to area. 3. As to population. 4. What countries border France? 5. What waters? 6. In what respects is its position favorable to commerce? 7. What do you observe about the general direction of the rivers? Name them. 8. Locate the island of Corsica, which belongs to France.

Its form of government

France is one of the few nations in Europe that has a republican form of government, the others being Portugal and Switzerland. For many centuries it was a monarchy, and one of the former emperors was Napoleon Bonaparte; but now the people elect a president and representatives, as we do in our country. The President of the Republic at the present time is Armand Fallières (Fig. 362).

Its boundaries

France has natural boundaries on most sides, as you see by the map. The country is inclosed on two sides by the sea, and on the other sides, in large part, by mountains. Notice how completely the Pyrenees separate France and Spain; and what a barrier the lofty Alps form along the Italian and Swiss borders. Even north of the Alps, a part of the boundary is formed by highlands.

It is natural that an independent country, with a separate language,

WESTERN EUROPE
Scale of Miles
0 50 100 200 300
Cities with over 1,000,000 London
Cities with 200,000 to 1,000,000 Lisbon
Cities with 100,000 to 200,000 Seville
Smaller places Coimbra
Capitals with less than 100,000 BERNE
Capitals of Countries
Other Cities
SCOTLAND
Glasgow
Edinburgh
Londonderry
Belfast
IRELAND
Dublin
Cork
Queenstown
North Channel
St. George's Channel
IRISH SEA
GREAT BRITAIN
Leeds
Hull
Liverpool
Sheffield
Manchester
Birmingham
WALES
Cardiff
ENGLAND
London
Bristol
Portsmouth
Plymouth
Dover
Bristol Channel
NORTH SEA
ATLANTIC OCEAN
ENGLISH CHANNEL
CHANNEL IS.
Cherbourg
Havre
Dieppe
Rouen
Reims
Paris
Versailles
Fontainebleau
Brest
Rennes
Le Mans
Angers
St. Nazaire
Nantes
Tours
Orleans
FRANCE
Rochefort
Limoges
Monts d'Auvergne
Perigueux
Bordeaux
Lyon
St. Etienne
Rhone R.
Saone R.
Garonne R.
Toulouse
Montpellier
Beziers
Bayonne
Marseille
Toulon
Gulf of Lyon
Nice
Pisa
Genoa
Alessandria
Turin
Milan
Geneva
Lausanne
Basel
Zurich
BERNE
SWITZERLAND
THE ALPS
Mt. Blanc
Grenoble
Lyon
Rhone R.
Saone R.
Mt. Blanc
Lille
Roubaix
Calais
Boulogne
Ghent
Antwerp
BELGIUM
Brussels
Liege
Cologne
Aachen
Dusseldorf
Elberfeld
Essen
Barmen
Krefeld
Rotterdam
The Hague
Amsterdam
Utrecht
NETHERLANDS
HOLLAND
Groningen
Hamburg
Bremen
Hanover
Brunswick
Magdeburg
Dortmund
Kassel
Frankfort
Nuremberg
Stuttgart
Strassburg
Augsburg
GERMAN EMPIRE
Copenhagen
DENMARK
Kiel
Lubeck
Altona
Elbe R.
Rhine R.
Munster
Mainz
Rhine R.
Mt. Blanc
Aar R.
Lucerne
Lichtenstein
Bavaria
Tyrol
Alpine R.
Mt. Blanc
Rhone R.
Saone R.
Lyon
Grenoble
Mt. Blanc
Pisa
Nice
Marseille
Toulon
CORSICA
To France
Ajaccio
Sassari
SARDINIA
To Italy
Cagliari
BALEARIC ISLES
Palma
Barcelona
Ebro R.
Saragossa
Valladolid
Salamanca
Madrid
Valencia
Alcazar de S. Juan
Alicante
Murcia
Lorca
Cartagena
Granada
Cordoba
Seville
Jerez de la Frontera
Cadiz
Malaga
Almeria
Gibraltar (Brit.)
Strait of Gibraltar
SIERRA NEVADA
Guadalquivir R.
Guadiana R.
Tagus R.
Duero R.
Douro R.
Ebro R.
Garonne R.
Rhone R.
Saone R.
Lisbon
Setubal
Faro
C. St. Vincent
PORTUGAL
SPAIN
Oporto
Braga
Vigo
Leon
Coimbra
CANTABRIAN MTS.
PYRENEES
ANDORRA
La Coruna
C. Finisterre
Gijon
Santander
Bilbao
Bayonne
Toulouse
Montpellier
Beziers
Marseille
Gulf of Lyon
Toulon
Lisbon
Cordoba
Seville
Cadiz
Gibraltar (Brit.)
Strait of Gibraltar
OMEDITERRANEAN SEA
AFRICA
ALGIERS
Williams Engraving Co., N.Y.
Longitude West from Greenwich
Longitude East from Greenwich

FIG. 361.

FIG. 362. — Armand Fallières, President of France.

highest peak, Mont Blanc (15,781 feet), is in France. There is also a low plateau in southern France, but fully three fourths of the country is a plain, sloping westward from the highlands of the south and east. All but one of the large rivers rise in these highlands, and flow gently across the plain to the Atlantic. Thus navigation is possible far into the country. Locate and name the four largest rivers. How does the Rhone differ from the other three?

Surface features

Since there are no mountains on the west to cut off the vapor-bearing winds from the ocean, there is ample rainfall for agriculture in all parts of France. The summer climate is warmer than that of England because France lies farther south, and is less under the influence of the ocean. The southeastern section, although it lies as far north as Boston, has a semi-tropical climate

Climate

should develop in a region so well inclosed by natural boundaries. But here, as in other parts of Europe, there were many separate kingdoms centuries ago. All these are now united under one government excepting three small sections. These are MONACO, ANDORRA and LUXEMBURG.

MONACO, in the southeast, is a small principality only eight square miles in area. ANDORRA is a small state in the Pyrenees. LUXEMBURG is a small duchy on the German border. Agriculture, iron mining and manufacturing are its principal industries. It is governed by a grand duke and a parliament.

The chief highlands of France are in the south and southeast. Among these the loftiest are the Alps, whose

FIG. 363. — A road across the rugged Pyrenees, which lie between France and Spain.

(Fig. 364). This is because of the influence of the warm Mediterranean waters, and the protection from cold north winds which the mountains give.

Fig. 364. — A view in Nice showing the semi-tropical foliage of southern France.

With so favorable a climate, and so much level land, France has naturally become a farming country. Nearly half the people are engaged in agriculture. The same grains are raised as in England. What are they (p. 240)? Wheat is the most important, and more of this grain is produced than in any other European country excepting Russia. Yet France raises only about half as much wheat as the United States, and not nearly enough for the needs of her people.

Agriculture
1. Crops

Grapes, not cultivated in the British Isles, thrive in the warmer climate of central and southern France. This fruit is the most valuable of all French crops, and more grapes are grown in France than in any other country of the world. In the Rhone Valley, and on the warm Mediterranean coast, there are groves of olive, orange, lemon, and mulberry trees. The leaves of the latter furnish food for the silkworm (p. 263).

Fig. 365. — A scene in a wheat field in central France. Notice that the women, as well as the men, work in the field.

2. Live stock

As in England and other countries, the highlands are unsuited to cultivation, and are in large part given over to grazing. As in England, too, there are broad tracks of lowland that are used for pasture. These facts explain why there are in France more than fourteen million cattle and eighteen million sheep, besides large numbers of horses, swine, and goats.

Neither lumbering nor fishing is of very great importance in France.

Yet, as in Germany, the French carry on forestry on the poorer lands. There is some fishing along the coast, and many vessels go to the fishing banks of the North Sea.

Lumbering and fishing

There is some coal, especially near the boundary of Belgium, but France has no such important coal beds as are found both in Germany and in England. It is necessary, therefore, to import coal from Germany, Belgium, and Great Britain. Neither is there so much iron ore in France as in these other countries, although there is some. Fine clays for porcelain are found in central France, and building stones are quarried in many places.

Mining

In spite of the limited supply of fuel, France is a great manufacturing nation. It leads in the production of silk and wine, and there is extensive manufacturing of metal, cotton, and woolen goods. One reason for these manufactures is the fact that coal is easily obtained, either in France or from the neighboring countries of Belgium, Germany, and England.

Manufacturing

1. Why very extensive

Another reason is the nature of the people themselves. Frenchmen have very artistic tasces. On this account the French have given much attention to the manufacture of the finer kinds of goods. Some of them are so fine that they are easily sold to the people of other countries. This has had great influence upon both the kind and amount of their manufactures.

The northern part of France, including LILLE, ROUBAIX, and REIMS, as well as cities near the mouth of the Seine, is the section especially noted for the woolen industry. Here coal is most easily obtained; and large numbers of sheep are raised near by, while foreign wool is imported from Argentina and Australia. Remembering that the hosiery, carpets, underclothing, and other goods are of high grade, and such as wealthy people use, we see that this location, between the two wealthiest capitals of the world, is especially favorable. Next to silk goods, woolen cloths form the most important French export to Great Britain.

2. Leading kinds

(1) Woolen and cotton manufacturing

There is also much cotton manufacturing near the coal fields of northern France. An important reason for this industry here is the ease with which American cotton may be imported; and this explains why ROUEN, on the Seine, is the center for cotton goods. There are other cotton factories in the highlands of eastern France, where water power is used instead of steam power.

Because the climate and soil of the Rhone Valley are favorable to the growth of the mulberry tree, and because coal mines are near, this valley is famous for the manufacture of silk. LYON is the chief center, but ST. ETIENNE and PARIS are also noted for this industry. Some of this manufacturing is done in large factories, some in the homes of the workmen where hand and foot power are used in place of steam.

(2) Silk manufacturing

The traveler in the Rhone Valley sees grove after grove of mulberry trees, carefully tended in order to supply an abundance of leaves for the silkworm to eat in summer. The silkworm moth, at the end of the caterpillar stage, weaves a cocoon about itself (Fig. 366). The material of which the cocoon is made is a thread, about two miles in length, which must be carefully unwound. The single thread is so very fine that, in order to make a fiber strong enough for spinning and weaving, it must first be united with several others.

Since the worms are reared under cover, the silk industry may be carried on in any climate in which the mulberry tree will grow. It is possible, therefore, to produce raw silk in many parts of the world; but feeding the worms and taking the silk from cocoons require much labor, care, and skill. On that account silk production is carried on chiefly in those parts of the world where laborers will accept low wages. China produces the greatest amount of raw silk; but France, in the midst of Europe, where the market for silk goods is greatest, also produces a large quantity. It is the leading country for the manufacture of silk. Make a list of articles made from silk.

Fig. 366. — Piles of silkworm cocoons ready to be unwound.

The extensive cultivation of grapes has been mentioned. Great quantities of wine, for export or for use at home, are made from the grapes grown in France. In that country nearly every one drinks wine at his meals, or wine mixed with water.

(3) *Other manufacturing*

The manufacture of steel goods is important in some places, but to no such extent as in Great Britain and Germany. A great many different kinds of manufacturing are carried on in the cities of France, as in other countries.

Commerce

France exports large quantities of textile goods, wine, and leather goods. She imports coal, iron, wool, cotton, raw silk, and many articles of food. Thus she has a very extensive commerce with foreign countries.

The republic has a number of colonies (Fig. 355) with which she carries on extensive trade.

The most important of these are in Africa, as follows: (1) Algeria and Tunis, across the Mediterranean; (2) a vast area south of these countries, including a large part of the Sahara Desert, the Sudan, the upper Niger, and the country north of the Congo River; and (3) the large island of Madagascar, east of southern Africa. France also holds a part of Indo China and a very small bit of India, besides islands in different parts of the world.

Fig. 367. — Notre Dame Cathedral, one of the most famous buildings in Paris. General view from the river.

For the transportation of goods across the seas, France

has the advantage of facing both the Atlantic Ocean and the Mediterranean Sea; and there are good seaports on both coasts. What ports do you find on the map? What rivers connect these ports with the interior? Trace each. Boats pass freely up these rivers, except the Loire, which is too shallow for navigation.

It proved to be a favorable site for the growth of a great city, for it is in the midst of a very fertile region, and not far distant from several other densely settled countries. There are excellent means of transportation to the surrounding country by river, canal, and railway. The Seine leads to the sea,

FIG. 368. — A view along the finest street of Paris.

Principal cities
1. Paris

PARIS, the capital of France, is the largest city on the continent of Europe, and the third largest in the world. It has more than 2,800,000 inhabitants.

(1) Importance of its location

Paris is situated on the Seine at a point where there is a small island in the river. In early days this island was easily defended, and it was easy to cross the river here. So the people built a town here which later grew to be a large city.

and is also navigable far inland, and canals give water connection with the Loire, Seine, and Rhine.

(2) Its importance as an art center

Napoleon and other rulers collected art treasures from various nations, and founded museums and schools that have made Paris famous. For this reason large numbers of Americans go to Paris every year to study art. One of the old palaces, known as the *Louvre*, is the most noted art gallery in the world.

It contains thousands of wonderful works of art.

Among the many interesting suburbs of Paris is VERSAILLES, where there is another palace that was built in the days of kings. It is now used mainly as a museum, and scores of the large rooms are decorated with the finest of paintings. It is among such treasures that students of art spend much of their time.

and both this and the Limoges ware, manufactured at LIMOGES, are celebrated for their beauty.

Although so far inland, Paris ships more goods by water than any other French city. The extensive system of canals, by which the country is crossed in all directions,

(4) *Its commerce*

FIG. 369. — A view in Paris showing the broad streets and parks.

It is not strange, therefore, that Paris should be noted, the world over, for its beauty as a city (Fig. 368). The wide streets, the beautiful parks with their fountains and statues, and the fine public buildings and old royal palaces are wonderfully attractive. Even the dwelling houses are in good taste, for it is required by law that new buildings be so planned as to be in keeping with those near by. Therefore one seldom sees an unattractive building in Paris.

Like other great cities, Paris has many manufacturing industries. The people have paid special attention to the manufacture of articles which combine usefulness with beauty, such as jewelry, furniture, gloves, and fashionable shoes. The Sèvres porcelain is made in the suburbs of Paris;

(3) *Its manufactures*

have already been mentioned. Vast sums have been spent in dredging the lower Seine, so that small vessels can proceed directly to Paris. Larger ships transfer their goods to trains, or smaller boats, at HAVRE and ROUEN.

HAVRE, one of the two busiest French ports, has an extensive trade in coffee from Brazil, and in wheat and other materials from the United States. Farther to the northeast is BOULOGNE, where some of the steamships from America stop; and not far distant is CALAIS, the nearest port to England, where boats cross the Strait of Dover to England.

2. Other cities

(1) *Havre, Boulogne, and Calais*

(2) *Bordeaux and Lyon*

BORDEAUX, on the Garonne River (Fig. 370), in the midst of a fertile grape-raising district, is the chief port for the export of French wines. Locate the manufacturing cities previously named (p. 263), and tell for what each is important. Note especially LYON, the center of the silk industry, which is the third city in size in France.

(3) *Marseille*

The leading seaport of France, and the second city in size, is MARSEILLE. It is on the Mediterranean near the mouth of the Rhone. The delta of the Rhone is too marshy for a city, and Marseille occupies the nearest point where there is a good harbor and high ground. It has especially important trade with the countries bordering the Mediterranean, including the French colonies of Algeria and Tunis, in northern Africa.

Review Questions

1. What is the form of government? 2. What about the boundaries? 3. Locate and state some facts about Monaco, Andorra, and Luxemburg. 4. Describe the surface of France. 5. What can you say about the climate? 6. What crops are raised? 7. What about live stock? 8. Lumbering and fishing? 9. What minerals are found? 10. Why is manufacturing extensive in spite of limited supply of fuel? 11. Tell about the woolen and cotton manufacturing. 12. Silk manufacturing. 13. Other manufacturing. 14. Name and locate the chief manufacturing cities. 15. What advantages for commerce has France? 16. Name and locate the principal colonies. 17. Explain the importance of the location of Paris. 18. Show how Paris is important as an art center. 19. As a manufacturing center. 20. What about its commerce? 21. Locate and state the important facts about other cities in France.

FIG. 370. — A part of Bordeaux and the Garonne River.

Suggestions. 1. Make a collection of photographs of scenes in Paris. 2. Raise a silkworm from the egg. 3. When a hole is broken into a cocoon, its value for silk is destroyed. Why? 4. Examine a cocoon, and see if you can unravel some of its thread. 5. Also unravel a piece of silk goods and examine the threads. 6. See if you can find any Sèvres or Limoges ware. 7. Draw an outline map of France, with the principal mountains, rivers, and cities. 8. Bound France.

4. Italy (Fig. 385)

Map study 1. How does the latitude of Italy compare with that of New England? 2. What neighboring islands belong to it? 3. Point out the principal river. 4. What mountains extend from north to south? 5. What mountains lie on the northern boundary? 6. What countries border Italy? 7. What seas border it? 8. How does its position seem to be favorable for commerce?

Fig. 371.— Victor Emanuel III, King of Italy.

The parts of the country This country is mainly a long peninsula, shaped somewhat like a boot, which extends down into the Mediterranean Sea. What sea lies to the east of it? The island of *Sicily*, on the south, and also *Sardinia* on the west, both belong to Italy.

Its area and population The area of Italy is only a little greater than that of Colorado; but its population is over thirty-three millions. It is the smallest of the six Great Powers, but is the most densely settled of all except the United Kingdom.

Like Germany, Italy was for a long time divided into several independent countries. Now, however, these are all united under a single government. As in Germany and the United Kingdom, the form of government is a limited monarchy, the king at the present time being Victor Emanuel III (Fig. 371).

Its government

Surface features Most of the Italian peninsula is mountainous. In the north are the Alps, some of whose highest peaks are on the boundary between Italy and Switzerland. In northwestern Italy the Alps curve around and join the Apennines, which extend the entire length of the peninsula like a backbone. The principal lowlands are the narrow coastal plains and the broad Po Valley. There are also many small, fertile valleys among the mountains.

Climate We think of Italy as a sunny land of flowers, although Milan and Venice are in nearly the same latitude as Montreal. One reason for the pleasant Italian climate is that the lofty Alps form a wall that cuts off the cold north winds. Another reason is that the air is kept warm by the Mediterranean Sea whose water remains warm even in winter. On these accounts the Italian winters are mild; and in the extreme south the temperature seldom falls to the freezing point.

There is plenty of rain in many

parts of Italy during the winter; but in summer, when crops need it, there is far too little.

Agriculture
1. Importance of irrigation

A large part of the agriculture of Italy is carried on by the aid of irrigation. Indeed, they irrigate the land even where there is plenty of rain for crops. This is done because then plants can be given water when they need it, and there need be no fear of drought. Irrigation makes better crops, for the flooding of the land keeps the soil damp and also fertilizes it.

Fig. 372. — Lago di Garda, one of the Italian lakes on the southern side of the Alps. Groves of lemon trees are found along the shores of the lake.

The most extensive farming district is the fertile plain of the Po Valley. The tributaries of the Po, fed by the rains, snows, and glaciers of the mountains, furnish a large supply of water for irrigating the plain. Many of these streams flow through lakes — some of them among the most beautiful in the world (Fig. 372) — which act as great reservoirs for water supply. By the aid of irrigation from four to ten crops may be raised in a year.

With such extensive use of irrigation, and with such a warm climate, agriculture flourishes in Italy. It is the leading occupation of the country, and agricultural products are the chief exports.

2. Agricultural products

Among the products are many that thrive in semi-tropical climates, as well as others that are common in northern Europe. Where irrigation is so easy, the extensive cultivation of rice is possible. This is an important crop in northern Italy; but corn and wheat are raised in still greater quantities. Grapes are grown to such an extent that Italy ranks second among the wine-producing countries of the world; and so many silk worms are raised that raw silk is the most valuable export. Among the other products are eggs, which are exported in large quantities; also olives, oranges, lemons, tobacco, hemp, and vegetables. Many horses and cattle are reared on the farms.

On some of the mountain slopes forests are grown, but most of the natural forest was cut off long ago. Among the useful trees are the chestnut. These are planted in groves for the nuts, which serve as an important food. The Italian chestnut is much larger than ours, and is ground up into a kind of meal, as wheat is ground into flour.

Among the mountains there is much natural

pasture, to which herds of sheep and goats are driven in summer. Many goats are raised in Italy for their milk, and they are even driven into the cities, and milked at the doors of the customers (Fig. 373).

3. Important drawback to agriculture

One great drawback to the development of agriculture in Italy is the presence of broad, marshy tracts infested with mosquitoes, whose bite causes malaria. This is especially true in the southern half of the country, and there, even with fertile soil and a warm climate, large tracts of land have had to be abandoned. One sixth of the population suffers from malaria, and there are thousands of deaths from that disease every year. It is not to be wondered at that the Italian government is trying to stamp out this dread disease.

Fig. 373. — A herd of goats in the streets of Naples. They are driven from door to door, and milked whenever the customers wish to buy the milk.

Fishing

The fishing industry is important. Among the peculiar products of the sea are fine coral and sponges. You will remember that we found sponge fishing important also among the Bahama Islands east of Florida.

Mining

Italy is not very rich in valuable mineral deposits. Except in the island of Elba there is almost no iron; and no coal of value is found in the kingdom. Indeed coal, next to cotton, is the leading import. There is a little zinc and copper ore; but one of the most valuable mineral products is the sulphur of Sicily. Another mineral product is the pure white Carrara marble, of such rare quality that it is prized the world over.

Water power supplies the place of coal to some extent, and is often used to produce electricity. There is, therefore, more manufacturing than, from the lack of fuel, one might suppose. There is much silk manufacturing, but a large part of the raw silk is sent to France, Switzerland, and elsewhere, to be made into cloth. There are also woolen and cotton factories.

Manufacturing

The northern part, at *Turin*, and near the Alps, is especially noted for its manufacturing, and many different things are made here. Among the manufacturing industries are glass work, lace making, earthenware manufacture, the making of statuary, wood carving, coral carving, and straw plaiting. The Italians are very artistic, and they make many beautiful things that are highly prized in other countries.

Commerce

Italy has much less commerce than any one of the Great Powers so far studied. One reason for this is that Italy is not such a great manufacturing country. Another is that it is situated at one side of the densely settled part of Europe,

and its ports are farther from the New World than those of France, England, and Germany.

It has some commerce, however, for it has products to export, and must import others. For commerce in the Mediterranean, Italy is more favorably situated than any other nation, as it lies in the very heart of this great inland sea. It therefore has important trade with Africa and with Asia. Its only colonies are in eastern Africa.

FIG. 374. — A team in Naples consisting of a horse, a cow, and a donkey.

The largest city of Italy is NAPLES, in the southern part of the peninsula. The Bay of Naples on which it is situated, is wonderfully beautiful. On the north side, near the head of the bay, is the city itself, rising, street above street, upon an amphitheater of hills; toward the east is Mount Vesuvius (Fig. 375), with the crests of the Apennines in the distance; and on the south side of the bay is a steep, rocky coast, with numerous villages, partly concealed among groves of orange, lemon, and olive trees. All around the bay is a succession of towns and villages.

Principal cities in the south

1. Naples and vicinity

(1) *Beauty of its location*

This is one of the most densely settled regions in Europe. One reason for this is the fact that the land here is very fertile, made so by the volcanic ashes of Vesuvius. Another reason is the warm climate, and a third is the fine harbor. There is more shipping here than in any other Italian port, with the single exception of Genoa.

(2) *Reasons for the dense population here*

One reason for so large a city, and for so many towns and villages in this farming region, is the character of the Italians. They do not like to be alone. Instead, therefore, of living in scattered houses on farms, as is common in the farming districts of the United States, they crowd into the villages and cities. They do this, too, even though they must travel long distances to their fields of work, or suffer now and then from extreme want.

Within plain sight of Naples stands Mount Vesuvius, a cone of lava and ashes nearly a mile in height, from whose crater volumes of steam pour forth almost constantly. At the time of Christ the slopes of this mountain were dotted with farms, while thriving towns spread over the country at its base. But in the year 79 a terrible eruption took place that completely buried Pompeii, Herculaneum, and many villages, beneath showers of ashes and streams of volcanic mud. Since then Vesuvius has been in eruption many times, the last violent outbreak being in 1906, when much damage was done.

(3) *Mount Vesuvius; its history and attractions*

During the last century the buried city of Pompeii has been uncovered at great labor and cost. By these excavations much has been learned about the buildings and customs of the people who lived here at the time of Christ. One can walk along these deserted streets (Fig. 377), and wander among the ruined homes from which the people were driven forth on that terrible day, nearly two thousand years ago.

The principal city south of Naples is PALERMO, the capital of Sicily. It is situated in the midst of extensive vineyards and fruit groves. What fruits would you expect to find there?

2. Palermo

The site of Rome, the capital of Italy,

FIG. 375. — Vesuvius in eruption (1892). Huge volumes of steam and ash rise from the crater, while flows of liquid rock, or lava, stream down its slopes.

At present, one is able to go to the summit of Vesuvius on almost any day. There can be seen one of the most awful sights in the world, when one cautiously approaches the very edge of the crater — an opening several hundred yards across — and peers down into the abyss. Reports like the thunderings of cannon come from far below, and lumps of white-hot lava, several feet in diameter, are often hurled upward. At times lava lumps are thrown above the mouth of the opening and fall here and there outside, making one's visit full of excitement.

and the ancient capital of the mighty Roman Empire, was well chosen. It lies near the center of the Italian peninsula, and near the center of the Mediterranean as well. It is not a seaport, but lies at some distance from the sea, on the Tiber, the largest river of the country except the Po.

Rome

1. Its location

Fine residences, public buildings, art galleries, and notable ruins are numer-

Fig. 376.—The castle of St. Angelo, one of the ancient buildings of Rome.

FIG. 377. — A street in Pompeii. Even the tops of the houses were buried beneath volcanic ash which was erupted from Vesuvius (seen in the background) in the year 79.

ous in Rome. The dome of *St. Peter's* — the largest and most famous church in the world — towers above everything else; and the *Vatican*, where the Pope resides, is the most noted palace in Christendom (Fig. 378). In the Vatican are some of the finest and most beautiful of Michael Angelo's paintings.

2. Its attractions

The ruins of ancient Rome, which have been partly excavated, cover so many acres that the city is almost as much a tomb as a living city. One of the most notable relics of the past is the *Colosseum* (Fig. 380), a huge, oval-shaped amphitheater, open to the sky, with seats for forty or fifty thousand persons. In the days of the Roman Empire it was used to witness life-and-death struggles between men, and between men and wild beasts.

The *Forum* is another extensive ruin of ancient Rome (Fig. 381). It was the great public square, on a lowland among some low hills; but during the centuries that followed the fall of the Roman Empire, its monuments, arches, and other ornaments became entirely buried underneath rubbish. Whole buildings, as well as smaller objects, were so buried.

With the exception of Rome and Naples the large cities of the Italian peninsula are in the northern part. The first one north of Rome is FLORENCE, in a beautiful valley at the western base of the Apennines. Straw plaiting, mosaic work, and silk manufacturing are important Florentine industries. Florence is famous for its art galleries, which are among the finest in the world.

Principal cities in the north

1. Florence

MILAN, in the Po Valley, is the leading

FIG. 378. — St. Peter's Cathedral (on the left) and the Vatican (on the right) in Rome.

city of northern Italy. TURIN is another large city in the same valley. From very early times these cities have been important trade centers because of their positions at the crossings of trade routes in a fertile, densely populated valley. The railways recently built across the Alps, through long tunnels, have greatly increased their importance. They are busy manufacturing centers, making silk goods, cutlery, and other articles.

2. Milan and Turin

FIG. 380. — The Colosseum, one of the ruins of ancient Rome.

GENOA, although separated from the Po Valley by the Apennines, is the natural seaport for Milan and Turin. Since it is a port of outlet for so fertile a region, and is now connected with central Europe by railway, this city is the leading seaport of Italy.

3. Genoa

The principal port on the Adriatic Sea is VENICE, one of the most interesting of European cities. It was once one of the most powerful cities of Europe, and had extensive commerce with Central Europe, the countries of the Mediterranean, and Asia. Its citizens gained great wealth and made Venice one of the most beautiful cities of the world. Many fine houses, churches, palaces, and museums still remain to remind us of the ancient splendor of Venice.

4. Venice

The city is built upon more than a hundred small marshy islands, about two and a half miles from the mainland, with which it is now connected by railway. Canals take the place of streets. There are one hundred and fifty canals, the main one, or Grand Canal, being bordered by white marble palaces, whose doorsteps lead down into the water. Nearly four hundred bridges join the different islands, and there are many narrow footpaths; but since the chief highways are canals, *gondolas* (Fig. 383) take the place of wagons, carriages, and street cars. No doubt, thousands of children in that city have never seen a horse.

FIG. 381.— Ruins of some of the fine old buildings of ancient Rome, which for centuries were buried beneath rubbish.

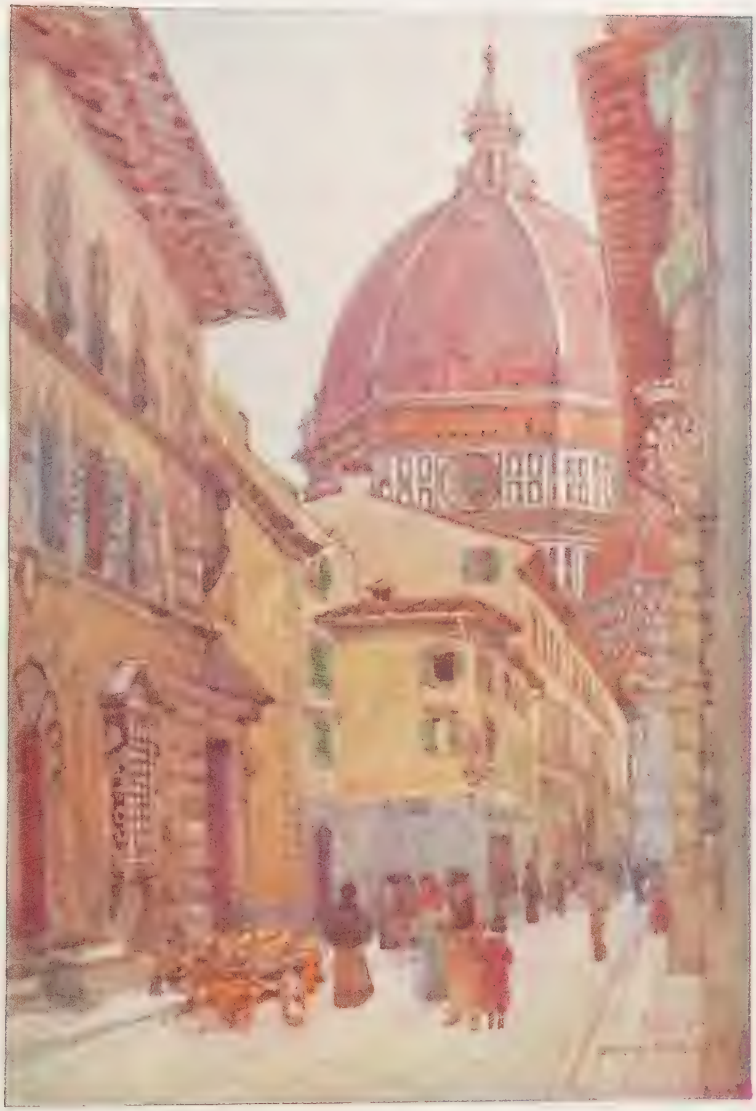


FIG. 379.—A street scene in Florence, Italy, the Duomo, or cathedral, in the background.

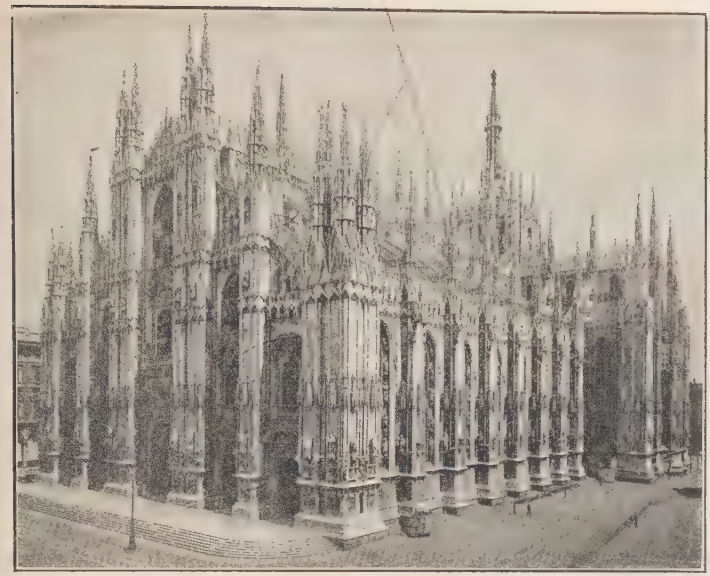


FIG. 382. — The Milan Cathedral, one of the most magnificent cathedrals in the world. It is built of white marble, and is adorned with a hundred spires, and fully four thousand statues.

San Marino, although surrounded by lands that belong to the Kingdom of Italy, is a tiny independent republic. It is the oldest, as well as the smallest, republic in the world, and owes its independence partly to the fact that the city is on a high, steep hill (Fig. 516) and was therefore difficult to capture.

San Marino and Malta

South of Sicily is the small island of *Malta* (Fig. 318), which, like Gibraltar, belongs to Great Britain, and is strongly fortified.

Review Questions

1. What islands belong to Italy? 2. What are the area and population of Italy? 3. What kind of government has it? 4. Describe the surface features. 5. The climate. 6. Why is irrigation especially common there? 7. Name the agricultural products. 8. How does malaria interfere with agriculture? 9. State the principal facts about fishing and mining. 10. Manufacturing. 11. What about the commerce of Italy? 12. Describe the beauty of the location of Naples. 13. State the reasons for the dense population near Naples. 14. Tell about Mount Vesuvius; its history and attractions. 15. Locate Palermo. 16. Describe the location of Rome. 17. What are its present attractions? 18. Locate and state the principal facts about Florence. 19. Milan and Turin. 20. Genoa. 21. Venice. 22. San Marino and Malta.

Suggestions

1. What copies of great paintings from Italy have you seen? 2. Find pictures of some of the ruins in Rome, or elsewhere. 3. Find out about the Catacombs of Rome; the Appian Road; the Aqueducts. 4. Ask some lawyer to tell you what influence Roman law has had upon our own law. 5. Find some facts about Caesar, Cicero, Dante, Leonardo da Vinci, and Michael Angelo. 6. Where was Columbus born? 7. Bound Italy.

FIG. 383. — A gondola on one of the canals in Venice.

8. Make a drawing of the country and show the location of the chief cities and rivers.

5. Austria-Hungary (Fig. 385)

Map study

1. Compare Austria-Hungary with Germany in area. (See Appendix.) 2. In population. 3. In number of large cities. 4. How much of the boundary is formed by water (Fig. 385)? 5. What countries border this empire? 6. What portions are mountainous? 7. Make a sketch of the mountains, with names (Fig. 320). 8. Trace the course of the largest river. 9. What parts of Austria-Hungary do not belong to the Danube basin?

Area and parts of the country

This empire is larger than any other country in Europe except Russia; yet it is not so large as our state of Texas. It is made up of two main parts: (1) *Austria*, on the west, where many of the people are of the same race as the Germans, and where the German language is spoken; and (2) *Hungary*, where entirely different languages are spoken, and where the people are of very different races, some having come from Asia.

Fig. 384. — The citadel of the Republic of San Marino.

Fig. 386. — Francis Joseph, Emperor of Austria-Hungary.

Government

Austria and Hungary are united to form a monarchy under a single ruler; yet each is independent of the other in some respects, and each has its own capital. The present emperor is Francis Joseph I (Fig. 386).

Surface features

Austria-Hungary is one of the most mountainous countries in Europe. It includes the eastern half of the Alps (Fig. 387), besides several other ranges. These mountains form a circle inclosing a broad level area (Fig. 320), called the Hungarian plain, through which the Danube River flows. The inclosing mountains are broken at only two points, — one near Vienna, where the Danube enters the Hungarian plain (Fig. 391), and the other on the southeastern boundary, where that river leaves it.

Climate

Everywhere except on the higher mountains, the temperature is favorable for the growth of grains and other crops of temperate latitudes. That is, the summers are warm and the winters are cold;

CENTRAL EUROPE
Scale of Miles
0 50 100 200 300
Cities with over 1,000,000 Berlin
Cities with 200,000 to 1,000,000 Naples
Cities with 100,000 to 200,000 Venice
Capitals with less than 100,000 BERNE
Capitals of Countries
Other Cities
NORTH SEA
BALTIC SEA
BLACK SEA
ADRIATIC SEA
TYRRHENIAN SEA
IONIAN SEA
AEGEAN SEA
MEDITERRANEAN SEA
NORWAY
SWEDEN
DENMARK
RUSSIA
GERMANY
EMPIRE
POLAND
AUSTRIA-HUNGARY
SWITZERLAND
SERVIA
BULGARIA
TURKEY
GREECE
ROUMANIA
LUXEMBURG
NETHERLANDS
CORSICA (To France)
SARDINIA (To Italy)
SICILY
Skager Rack
Cattegat
Gulf of Riga
Riga
Gothenburg
Linköping
Jönköping
Karlskrona
Lund
Malmö
Copenhagen
Aarhus
Odense
Kiel
Lubeck
Hamburg
Altona
Bremen
Stettin
Danzig
Konigsberg
Berlin
Charlottenburg
Hanover
Brunswick
Magdeburg
Stassfurt
Halle
Leipzig
Kassel
Dortmund
Krefeld
Essen
Düsseldorf
Barmen
Elberfeld
Aachen
Cologne
Frankfurt on Main
Erfurt
Chemnitz
Dresden
Gorlitz
Breslau
Posen
Warsaw
Lodz
Reichenberg
Carlsbad
Prague
Pilsen
Mainz
Darmstadt
Würzburg
Nuremberg
Mannheim
Stuttgart
Karlsruhe
Baden-Baden
Strassburg
Mülhausen
Augsburg
Munich
Salzburg
Innsbruck
Linz
Vienna
Pressburg
Brunn
Budweis
Krakow
Lemberg
Kaschau
Debreczen
Budapest
Gratz
Odenburg
Klausenburg
Szegedin
Maria Theresiopel
Balaton L.
Laibach
Agram
Trieste
Fiume
Venice
Padua
Verona
Milan
Turin
Genoa
Ferrara
Ravenna
Bologna
San Marino
Pisa
Florence
Leghorn
Ancona
Pola
Banjaluka
BELGRADE
Nish
Prisrend
Uskup
Monastir
Salonica
Seres
Philippopolis
SOFIA
BALKAN MTS.
Varna
Kustendje
Cuiova
Bucharest
Kronstadt
Tcrnesvar
Lassy
Odessa
Czernowitz
Constantinople
Sea of Marmora
Bosporus
Adrianople
Gallipoli
Larissa
Trikala
Jamina
Corfu
Patras
Corinth
Athens
Piræus
Kalamata
C. Matapan
Scutari
MONTENEGRO
CETTINJE
Otranto
Gulf of Taranto
Brindisi
Bari
Foggia
Naples
Mt. Vesuvius
Rome
Palermo
Messina
Strait of Messina
Catania
Mt. Etna
Cagliari
Sassari
Ajaccio
ELBA
APENNINES
Mt. Blanc
Mt. Cenis
Geneva
Lausanne
Basel
Zurich
Lucerne
Metz
Luxemburg
Aachen
Danube
Sava R.
Po R.
Tiber R.
Dnieper
Dniester
Theiss R.
Vistula
Oder
Elbe R.
Rhine
Moselle
Maas
Scheldt
Gulf of Riga
Greenwich
Longitude
Wilhelms Engraving Co., N.Y.

FIG. 385.

FIG. 387. — A street in Innsbruck in Austria, with the snow-covered Alps rising steeply in the distance.

but the difference between summer and winter is much greater than in England. Why?

The rainfall of the lowlands is only about enough for crops, and there are occasional summer droughts in some places.

People and language

Austria-Hungary is different from any country so far studied in one very important respect. Its people are not of one race, and they do not even have a common language. About one fourth of the people, mainly in Austria, are of *German* stock. In Hungary, on the other hand, nearly half the population is *Magyar*, a people related to the Mongolians. Even more numerous than either of these are the *Slavs*, of Russian origin. In the southwest there are many people related to the *Italians;* and there are a number of other races in the empire. German is spoken by most of the educated people, but at least a dozen languages are spoken in the empire, and even two or three in a single town.

This great mixture of races is the result of three causes. In the first place, the empire is in the center of Europe, surrounded by other nations differing in speech, and it has been easy for these to push across the borders. A second reason is that the empire has been enlarged through war, and thus people of different languages have been forced to join the nation. The third reason is that in this mountainous country, with many inclosed valleys, people have tended to develop customs and languages different from those of their neighbors.

FIG. 388. — A family of gypsies and their house, in Austria.

Many of the mountain slopes are forest-covered, and wild animals are still found in the remoter parts. Since nearly a third of the empire is wooded, lumbering is one of the important industries.

Lumbering and agriculture

Where the woods have been cleared away from the mountain slopes, there are pastures for sheep and goats. Cattle also are raised, especially on the lowlands.

Near the Adriatic Sea, and in the warmer valleys, there are many vineyards; and the mulberry tree furnishes food for the silkworm, as in northern Italy and in southern France. Flax, hemp, potatoes, sugar beets, and tobacco are other important crops. But the grains, especially wheat, rye, barley, oats, and corn, are the chief agricultural products of both Austria and Hungary. The broad plains of the Danube form one of the leading wheat-producing regions of Europe. So much wheat is raised that a large amount is exported.

There is much mineral wealth in the mountains, including the precious stone called *opal*, and deposits of salt, gold, silver, lead, quicksilver, and copper. There are deposits of clay used in the manufacture of fine porcelain ware; and of quartz, which supplies the material for the Bohemian glass blowers, who make some of the finest glassware in the world.

Mining

Iron ore is widely distributed; and Austria-Hungary ranks third among the coal-producing countries of Europe (Fig. 323). Some of the best deposits are in the northwest, near PRAGUE. Petroleum is also found in this empire.

There is much less manufacturing in Austria-Hungary than in Great Britain, Germany, or France. Yet there are numerous cotton, woolen, flour, and paper mills, iron manufactories, and beet-sugar refineries. There is also much silk weaving. The chief manufacturing region is in the northwest, near Germany, while the principal agricultural sections are in the central and eastern parts.

Manufacturing

FIG. 389. — An Austrian village with mountains in the background.

This empire has only a small strip of coast on the Adriatic Sea, remote from the Atlantic Ocean. Its ocean commerce therefore is not very extensive, and it is easy to understand why it has no colonies. The means of transportation in the interior are also poor. This is partly due to the mountainous country, which makes the building of canals and railways difficult. It is also partly due to the direction of the rivers. The largest of these, the

Commerce

Danube, which is navigable from Germany to its mouth, flows eastward and its lower course is in other countries. It leads *away* from the great markets of Europe and of the New World, instead of toward them. The navigable Elbe connects the northern part of the empire with the sea, and there are also several railway lines to the Atlantic and Baltic seaports. The greater part of the foreign commerce is carried on through the German ports.

FIG. 390. — A view in Vienna showing some of the fine public buildings.

There are many small cities in this empire, but few large ones. The largest two, VIENNA, the capital of Austria, and BUDAPEST, the capital of Hungary, are on the Danube River.

Principal cities

VIENNA, which is larger than Philadelphia, is the greatest city in Austria-Hungary and the fourth in size in Europe. The main reasons for its size are the facts that it is the capital of a great empire and is located on a large river in the central part of Europe. The railways which lead from St. Petersburg to Rome, and from Berlin and Paris to Constantinople, meet at this point, making the city a great railway and trade center.

1. Vienna

Vienna is a beautiful city, with many fine public buildings (Fig. 390), including the palace of the emperor and some noted museums. As in most large cities, there is much manufacturing of various kinds.

BUDAPEST, made up of two towns (Buda and Pest), on opposite banks of the Danube, is the capital of Hungary and the home of the Emperor for a part of each year. The city lies in the midst of the fertile wheat-raising plains of the Danube, and is engaged in flour manufacture and grain shipment.

2. Budapest

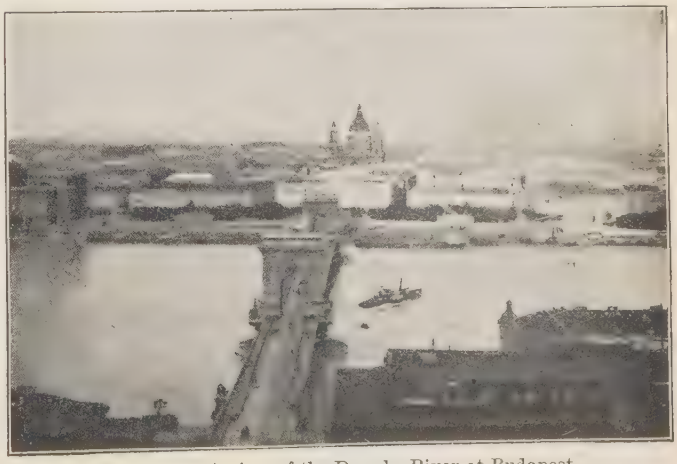


FIG. 391. — A view of the Danube River at Budapest

PRAGUE, the third city of Austria-Hungary, is situated on the navigable Elbe, which has been an important trade route since

3. Prague

FIG. 392. — Some of the native animals of Europe.

early times. Located in the midst of a rich mineral region, it is a noted manufacturing center.

4. Trieste and Fiume

TRIESTE is the largest Austrian seaport. Although separated from the main part of the country by mountain ranges, it is connected with the interior by a railway.

FIUME, southeast of Trieste, has an excellent harbor, but has little trade and is a small town.

5. Lichtenstein

On the boundary between Austria and Switzerland is *Lichtenstein*, a very small independent country.

Review Questions

1. How large is Austria-Hungary? 2. What about its two parts? 3. What kind of government has it? 4. Describe the surface features of Austria-Hungary. 5. The climate. 6. Tell about the mixture of races here. 7. Give reasons for such a mixture. 8. State the principal facts about lumbering. 9. About agriculture. 10. What minerals are found? 11. What can you tell about manufacturing? 12. Why is there so little commerce? 13. Locate and give the principal facts about Vienna. 14. Budapest. 15. Prague. 16. Trieste and Fiume. 17. Locate Lichtenstein.

Suggestions

1. How far is Vienna from Rome? From Paris? From Berlin? 2. Trace the course you would take, if you traveled by water from New York to Vienna. 3. In an atlas look up Austria-Hungary to find the portions which are called Tyrol, Moravia, Bohemia, Bosnia, Herzegovina, and Transylvania. 4. Look up some facts about the history of Poland. 5. Find out something about Kossuth. 6. Bound Austria-Hungary. 7. Make a drawing of it, including in the sketch the Danube River and the principal cities.

6. RUSSIA (Fig. 318)

Map study

1. About how much of Europe is included in Russia (Fig. 318)? 2. What part of the distance from pole to equator is included? 3. What does this suggest concerning the climate? 4. What parts of the boundary of Russia are seacoast? 5. Name the seas which border it. 6. Name the mountains on or near the border. 7. What portion of Russia is occupied by plains (Fig. 320)? 8. In what directions do the large rivers flow? Name the longest three. 9. Is there any outlet from the Caspian Sea? What does that fact suggest? 10. Find Poland, Finland, and Lapland. 11. What parts of Asia are in the Russian Empire (Fig. 434)?

Area and population

Russia is larger than all the other countries of Europe combined, but only about two thirds the size of the United States. Its population, however, is considerably larger than ours, and about twice that of any other European country.

The Ural Mountains form a part of the eastern boundary of European Russia. The Russian Empire, however, extends thousands of miles farther east, reaching across Asia even to the Pacific Ocean. The part of the Empire beyond the Urals is called Siberia. Including Siberia, and other Russian possessions in Asia, the area of the whole Empire is greater than that of all North America. Only the European part is now to be studied.

People

The people of Russia belong to different races. Some have come from the vast plains of Asia, and some from other parts of Europe. The country is so large, and so much of it is a plain over which it is easy to travel, that people from very different sections have migrated to it.

Most of the Russians are *Slavs*, a division of the white race that speaks a very different language from that of any other Great Power. The *Lapps* of Lapland and the *Finns* of Finland are under the rule of Russia, but they both belong to the yellow, or Mongolian race. These are only a few of the kinds of people in Russia, for in all about forty

different languages are spoken in this empire.

All these people, with different languages and customs, are kept under control by a government which is very different from any thus far studied. France is a republic, and the four other Great Powers of Europe are called *limited monarchies;* but the Russian government is an *absolute monarchy*, or *despotism*. This means that the ruler, who is called the *Czar*, can do more nearly as he pleases than can any of the other rulers of Europe. The name of the present Czar is Nicholas II (Fig. 394).

Government

Fig. 393.—A family of Russian peasants.

The common people of other European nations have been steadily getting more and more liberty and better education; but the Russian people have been kept in poverty and ignorance (Fig. 393). Until the middle of the last century the common people were *serfs*, who were little better than slaves to their lords, the nobles. Even now that they are freed, little attempt is made to educate them, and they have little liberty.

In recent years the people have been allowed to elect representatives to the *Duma*, which somewhat resembles our Congress. Yet even in the Duma, the representatives are not free to speak and vote as they choose.

Fig. 394.—Nicholas II, Czar of Russia.

Most of Russia is a very level plain, the highest part of which is near the center, where the elevation is only about twelve hundred feet above sea level. Several large rivers have their sources in this central hilly region, and flow outward in different directions. What are their names? These rivers flow with gentle course over the vast plains, and are therefore very useful for navigation.

Surface features

Mountains are found in Russia only on the borders. Name those on the eastern border. What is the name of the mountains in the south? Mt. Elbruz, in these mountains, is the highest peak in Europe. At the northern

FIG. 395. — The city of Moscow, situated in the midst of the vast, level Russian plain.

base of the Caucasus there are broad plains, some portions of which are below sea level. It is in these plains that the Caspian Sea, a great salt lake without outlet to the sea, is situated.

Climate

Russia lies so far from the ocean that it is much less under the influence of the ocean winds than France, Germany, or the British Isles. The northern half of the country, therefore, has cold winters, and in the far north a frigid climate. But Russia extends so far south, that in the southern portion, near the Caucasus, the climate is that of the warm temperate zone.

In most of the country there is rainfall enough for agriculture (Fig. 324), though in parts farthest from the sea droughts are common. Southeastern Russia, near the Caspian Sea, has a very dry climate, and in places this region is a true desert.

It is because of this dry climate that the Caspian Sea, the greatest inland sea on the earth, is salt. The water evaporates from its surface faster than it can be poured in by the rivers, even though it receives the Volga, the largest of European rivers. The Caspian Sea cannot, therefore, rise high enough to flow out to the sea. In fact, there is so much evapora-

FIG. 396. — Reindeer, used in winter for drawing sleds over the snow-covered ground of northern Russia.

tion that the surface of the Caspian Sea is kept eighty-five feet lower than the level of the ocean. The Aral Sea, nearby, also is salt.

Agriculture
1. Sections unsuited to agriculture

In some parts of Russia the climate is unsuited to agriculture. In the northern part, for instance, the plains, called *tundras*, are always frozen. Even in summer they thaw out only at the surface, and trees cannot grow upon them. Mosses and grasses are the chief plants there, and the reindeer, which feeds upon them, is the principal domestic animal (Fig. 396). It is the main support of the few people who live on the tundras.

Southeastern Russia, on the other hand, is too dry for agriculture without irrigation. This is the region of the *steppes*, which resemble the arid lands of our Western States; here grazing is the leading industry.

2. Chief products

Although agriculture is impossible in some parts of Russia, a very large part of the vast empire has level land, good soil, and a climate favorable to farming. Fully nine tenths of the people are supported by farming, which shows that Russia is mainly an agricultural country.

The chief crops are the grains, especially rye, wheat (Fig. 397), barley, and oats. Russia ranks next to the United States among the grain-producing countries of the world, and wheat is one of its principal exports. Another important crop is hay; and potatoes, sugar beets, and flax are raised in the cool temperate climate. In southern Russia the warm climate permits the culture of grapes, tobacco, and corn; and south of the Caucasus even olives and cotton are grown.

3. Grazing

On the grazing lands of the arid steppes many sheep, cattle, and horses are raised. The nomadic herdsmen still retain many of the customs of the shepherds and herders of Bible times, who dwell farther south in Asia. This is the home of the *Cossacks*, a people of Tartar descent, noted for their skill as horsemen, and for their fierce bravery.

FIG. 397. — A Russian peasant girl harvesting wheat by hand.

Lumbering and fishing

Nearly a third of Russia is forest covered, and timber is one of the leading resources. Many fur-bearing animals live in the forest, and Russia, like Canada, exports large numbers of valuable furs. Fishing is an important industry in Russian waters, both in the sea and in the rivers and lakes.

Russia is a noted mining country. In the Ural Mountains are gold, silver,

copper, and platinum, besides some precious stones and graphite, or "black lead," used in lead pencils.

Mining

Coal and iron are mined in several parts of Russia, particularly in the east, in Poland (Fig. 323). The Russian Empire ranks next to the United States in the production of petroleum. This oil is found in several places, but mainly near *Baku* on the Caspian Sea. Large quantities are used as fuel for steamers on the Caspian Sea and the Volga River; and, as in California, the oil is used in locomotives.

Fig. 398. — A Græco-Russian church in Moscow.

Numerous factories have recently been started in Russia, but most of the manufacturing is still done by hand in the homes of the workmen. How different this is from the United States and Great Britain! Distilling and brewing, cotton manufacturing and sugar refining, are the principal forms of manufacturing carried on in factories. Flour mills, woolen and linen factories, and iron works rank next in importance. What raw products of Russia encourage these industries?

Manufacturing

Since Russia is mainly an agricultural country, its exports are largely food products and raw materials for manufacture, and its imports are chiefly manufactured goods. How different this is from England, Germany, and France!

Commerce

Russia is unfortunate in lacking good seaports. A part of the seacoast is on the Arctic Ocean, where the harbors are icebound nine months of the year. A part is on the Baltic Sea, and there, also, the harbors are frozen over in winter. The Caspian Sea has no outlet, so that vessels cannot get out of it.

The best seacoast is on the Black Sea; but to get from this to the Atlantic Ocean, it is necessary to pass through a narrow strait, called the Bosporus, and then through the Mediterranean Sea. This is a very long journey. Russia therefore resembles Austria in its lack of good and convenient seaports.

On the other hand, the interior of Russia is so level that it is easy to build railroads there. Water transportation is easy, too, because of the large rivers. Into what water does each of these rivers empty?

The value of the rivers is greatly increased by means of canals, which have been easily built across the plains. It is possible to go, by river and canal, from both the Caspian and the Black seas to the Baltic Sea. On what

rivers might one travel in making each of these journeys?

Moscow (Fig. 395), the second city in size, and once the capital of Russia, is located almost in the center of the empire. It has long had connection with distant parts of Russia by river and canal, and is now a great railroad center. Being situated in the midst of a fertile, densely settled region, Moscow has become one of the chief manufacturing cities of the empire. It is the holy city of Russia, being the center of the Græco-Russian Church, and has many fine royal palaces, government buildings, and churches (Fig. 398).

Principal cities
1. Moscow and Nizhni Novgorod

East of Moscow, on the Volga River, is NIZHNI NOVGOROD, renowned for its yearly fairs. For centuries this has been a great trade center for the exchange of Asiatic and Russian products, which have been easily carried on the navigable Volga. The fairs, held in August and September, are the greatest in Europe, and attract as many as two hundred thousand strangers each year. In a single season goods are here exchanged to the value of nearly $200,000,000, and prices are fixed on crops and other materials for the coming year.

While the two cities just described are very old, their position in the interior is not favorable for commerce with distant nations. It was this fact that led Peter the Great, in 1703, to found ST. PETERSBURG at the head of the Gulf of Finland. This is now the largest city in Russia, and the fifth in size in Europe. Its growth is partly due to the need of a seaport in this section, and partly to the fact that the city is the capital of a great empire. More goods are shipped from this point than from any other Baltic port. RIGA, to the southwest, has about half as much shipping.

2. St. Petersburg and Riga

ODESSA, another important seaport, is the chief outlet for the vast grain trade of southern Russia, and the principal port on the Black Sea. It is an important flour-milling center, like Minneapolis.

3. Odessa

FIG. 399. — A Russian sleigh in St. Petersburg.

At one time there was a powerful kingdom, called *Poland*, in central Europe. But this kingdom was conquered and divided among Russia, Austria, and Germany. Russia obtained the largest share, and in this portion are situated WARSAW and LODZ, two of the leading cities in the empire. The former is a center for the railways that connect Russia with western Europe, and the latter is an important manufacturing

4. Warsaw and Lodz, in Poland

city. Much coal and iron are mined in this vicinity.

Finland

Finland, whose capital is HELSINGFORS, is a part of the Russian Empire, but is allowed some voice in its own government. It has a parliament which makes its laws, but the Czar has the right of veto upon them. Unlike the Russians, most of whom belong to the Græco-Russian Church, the Finns are mainly Protestants, belonging to the Lutheran Church. They are a nation of highly educated people. But it has been the policy of the Russian government to destroy their existence as a nation. On account of mistreatment from the Russians, many Finns and Poles have migrated to the United States.

Review Questions

1. What about the area and population of Russia? 2. What different races can you name, and how many languages are spoken in Russia? 3. What is the kind of government? 4. What is the condition of the people? 5. Describe the surface features. 6. What can you say about the climate? 7. What sections are unsuited to agriculture? 8. What are the agricultural products? 9. Where is grazing carried on? 10. What about the forest products? 11. Name the chief mineral products. 12. What is the condition of manufacturing? 13. What are the chief exports and imports? 14. State some facts about the seaports. 15. How is transportation of goods in the interior favored? 16. Locate and state the principal facts about Moscow and Nizhni Novgorod. 17. St. Petersburg and Riga. 18. Odessa. 19. Warsaw and Lodz. 20. Finland.

Suggestions

1. Compare Russia with the United States in area and population (See Appendix); also in degrees of latitude contained. 2. Name some city in the United States that has almost the same latitude as Odessa. 3. What part of eastern North America is in the same latitude as St. Petersburg? 4. Compare the area of the Caspian Sea with that of Lake Superior. 5. Show the route a vessel might take in going from Odessa to St. Petersburg. 6. What did Kosciusko, the Pole, do to make his name memorable to Americans? 7. Have you read the story of Thaddeus of Warsaw? If so, what can you tell about him? 8. Read how Peter the Great wandered through European countries, as a common workman, in order to learn Western customs. 9. Bound Russia. 10. Make a sketch map of Russia, with principal rivers and cities.

SECTION III. THE LESSER POWERS OF EUROPE

1. NORWAY AND SWEDEN (FIG. 318)

Map questions

1. The Scandinavian peninsula is the largest in Europe. What is its length in degrees (Fig. 318)? In miles? 2. How does its western coast remind you of the western coast of Scotland? 3. What do you observe about the rivers of Sweden? 4. What points in North America have about the same latitude as Christiania and Stockholm? 5. Find a city north of the Arctic circle. 6. What does this location suggest as to climate?

Why thinly settled

The two kingdoms of Norway and Sweden, on the Scandinavian Peninsula, are each larger than the British Isles. Yet both together have a very much smaller population.

One reason for the sparsity of population is the latitude. Look upon a globe to see what part of North America is in the same latitude. It would not be possible for the few million inhabitants of

these two countries to live so far north if it were not for the west winds, which blow from the ocean. Even in spite of that influence, most of the region has a cold climate.

A second reason for the small number of inhabitants is the roughness of the surface. A mountain range extends almost the whole length of the peninsula, and some of the peaks rise more than a mile above the sea level. Most of the peaks are lower than this and of nearly equal height, forming a rough mountainous plateau. The mountains descend steeply to the ocean on the western side, so that Norway is a narrow, mountainous country. The surface is less rugged in the south and the east, so that southern Norway and southern and eastern Sweden have more farming land than the northern portions.

Fig. 400. — Peasants of Norway in their native dress.

Most of the people live in the southern and eastern parts, where the climate is milder and the land more nearly level. The Scandinavian people have been closely connected with our own history. They made some of the early invasions and settlements in Great Britain, and thus are numbered among our ancestors. Their daring seamen reached Greenland, by way of Iceland, and discovered America nearly five hundred years before Columbus visited it. During the last century they have migrated to the United States by thousands (Fig. 326), and have chosen homes in many states.

Their relation to us

Fig. 401. — Laplanders who live, mainly by fishing, in northern Norway.

It is easy to see that agriculture must be a far less important industry in the Scandinavian peninsula than in the countries that we have just been studying. The hardy grains and vegetables are the principal farm crops, and many cattle and sheep are raised on the mountain pastures. Why would you not expect to

Agriculture, lumbering, and fishing

find cotton, grapes, or tobacco growing here?

Where the mountain slopes are too rugged for farming, there are extensive forests. About one fourth of Norway, and much of Sweden, is covered with forest. Therefore, lumber is one of the leading products of both countries.

FIG. 402. — A view in one of the fiords on the coast of Norway.

Since crops are not extensively raised, fish are much used for food. There are many of these, especially cod and herring, in the shallow waters near the coast. More than a hundred thousand Norwegians are engaged in the fishing industry. Along the coast almost every family owns a boat, and often knows how to make one as well as how to use it. While the men are at sea, the women work the small farms or garden patches.

Some valuable minerals are found in Scandinavia, especially iron in Sweden. There is also some silver and copper, but no coal. The mountain streams, however, furnish much water power, some of which is used in manufacturing. Most of the manufacturing is in the southern part of the peninsula, where it is easy to import coal for fuel.

Mining and manufacturing

On the map you will notice that the coast of Scandinavia is very irregular, especially in Norway. Here the sea enters the deep mountain valleys, forming long, narrow bays, with steep walls. Some of these inlets, called *fiords* (Fig. 402), reach many miles into the land. They make excellent harbors and form some of the grandest scenery in Europe.

Scenery

The cliffs are often only barren rock; but here and there, where the slopes are not too steep, green forests cover the surface. Glaciers are often in sight; and waterfalls abound on every hand. In some places the swollen streams from the mountains plunge downward for a thousand feet or more, over the nearly vertical cliffs that inclose the fiords.

Here and there, upon a level patch, a group of fishermen's homes is seen. These are usually upon the deltas of small streams, and are connected with the outer world by no road or pathway except the waters of the fiord. Thus cut off from others, each man must learn to do many things, — farm, fish, tan his leather, make his shoes, build his boat, his house, etc.

Many tourists go up the coast of Norway every summer in order to enjoy the scenery of the fiords, and to see the great glaciers that descend from the high mountains. The tourist steamers cross the Arctic Circle and go as far as North Cape, where in summer one is able to see the midnight sun (Fig. 403). During several weeks of summer, the sun circles around the heavens and does not set even in the middle of the night. For this reason the northern part of the peninsula is sometimes called "the land of the midnight sun."

The fiords of Norway and the protected bays of Sweden form excellent

harbors, and the Scandinavian people have become skillful sailors. In fact, in some of the Norwegian fiords the only way to get from one point to another is by boat. The need of obtaining fish for food has helped also to make the people skillful in handling vessels, while the abundance of lumber has made it possible to build them very cheaply.

Transportation of goods

Largely for these reasons, the Norwegians and Swedes are extensively engaged in shipping. They build boats, and man them with sailors for use in fishing and in carrying goods. Navigation is one of their leading industries, especially the carrying of goods for people of other countries.

Fig. 403. — The midnight sun at North Cape, the northmost point in Norway.

Fig. 404. — A view of Stockholm.

The chief cities are in the south. Stockholm, the largest, is the capital of Sweden. It is beautifully situated on an excellent harbor and is connected by lake, canal, or rail with the chief points of the country. Gothenburg, also a seaport, is the second largest city in Sweden. Locate each of these cities.

Chief cities and government

Christiania, the capital and principal city of Norway, is situated at the head of a long, narrow fiord which makes an excellent harbor. Bergen, the second city in size in Norway, is an important fishing port.

For a long time Norway and Sweden were united under the same king, but a few years ago they separated. Now each is a limited monarchy with its own king.

Review Questions

1. Why are these countries thinly settled? 2. Describe the mountains. 3. How are the Scandinavian people related to us? 4. Tell about their agriculture, lumbering, and fishing. 5. Mining and manufacturing. 6. Describe the scenery of the fiords. 7. What do people see at North Cape? 8. Why is transportation of goods so important? 9. Name and locate the chief cities of Sweden. 10. Of

Norway. 11. What is the kind of government?

Suggestions

1. Sketch the peninsula. Put in the principal cities, and North Cape. 2. What is the latitude of North Cape? 3. Bound Norway. 4. Bound Sweden. 5. Why should Bergen be one of the rainiest cities of Europe? 6. Give reasons why harbors on the Baltic are blocked by ice much oftener than those on the western coast of Norway. 7. Find out about the early Norse explorations of North America. 8. Read and tell stories of the Norse gods in oldtime mythology. 9. Make a drawing of the Scandinavian peninsula, and show the boundary line between the two countries.

2. Denmark (Fig. 385)

Map study

1. Locate Denmark; point out the islands that form a part of the country. 2. At the entrance to what sea does Denmark lie (Fig. 318)? 3. How does Denmark compare in size with Maine? In population? (See Appendix.) 4. Locate the Faroe Islands. 5. Iceland.

Fig. 405. — A scene in Copenhagen.

Its relation to Scandinavia

Just south of Scandinavia is a small peninsula called Jutland. On its northern end is the little country of Denmark, which also includes several small islands near the mainland. The people of Denmark are closely related to the Scandinavians in language and customs, and at one time were united with them in one nation. In fact, these three countries, Norway, Sweden and Denmark, are often called the *Norse* nations, or the countries of the Norsemen, or Northmen.

Surface features and climate

Denmark is quite unlike Scandinavia in one respect; it has no mountains. Everywhere the surface is low, and much of the land is either sandy or swampy.

The climate is quite like that of southern Sweden, but is a little milder because Denmark lies farther out in the ocean, and there is water on almost all sides. There is plenty of rain for crops.

Industries

1. Agriculture

Farming, especially dairying, is the chief industry of Denmark. In this small country there are more than one and a half millions of dairy cows and about half as many sheep, besides large numbers of horses, goats, and pigs. Butter forms one half the exports.

2. Fishing and commerce

Since the country is surrounded by salt water, there is much fishing, but the fisheries of Denmark are of much less value than those of Scandinavia. The Danes have extensive commerce, and some of the men serve as sailors on the ships of other nations.

3. Mining and manufacturing

There is neither coal nor metal in the rocks of Denmark, so that there is no mining in the country. The only mineral product of value is clay. As in Ireland the lack of coal for fuel is partly met by peat from bogs and swamps.

In spite of their lack of raw materials the Danes have much manufacturing. They make machinery, ships, beautiful porcelain, and many other articles. They are a highly educated people and very industrious. The fact that Denmark lies on one of the leading highways of European commerce has helped greatly in the progress of the Danes, for it has brought them into close contact with the rest of the world.

Chief city; government

The coast of Denmark is so low, and so shut in by sand bars, that good harbors are lacking. In fact, the only harbor that admits large vessels is COPENHAGEN (meaning merchants' harbor), on Seeland Island. Since this point guards the entrance to the Baltic Sea, Copenhagen has become an important city. It is both the largest city and the capital of the country, which is a limited monarchy.

Colonies

The daring sailors living here in early times, called *Norsemen*, explored many lands, and had colonies even before the other countries of Europe. When Norway and Denmark separated, these colonies remained a part of Denmark. Although some of them have been lost, Greenland (p. 161) and the Faroe Islands are still Danish colonies, and Iceland is a Danish dependency. The *Faroes*, are a group of small islands north of Scotland. Denmark owns also three islands in the West Indies — St. Croix, St. Thomas, and St. John.

Iceland, which is larger than Ireland, and more than twice as large as Denmark, is an island having more than a hundred volcanoes, the most noted of which is Mount Hekla. Destructive volcanic eruptions and earthquakes are common, and there are also geysers similar to those found in our Yellowstone National Park. The interior is a desert plateau, in part covered by glaciers, and hence not inhabited. Near the sea, however, there is some good pasture land, and here the people are engaged in raising sheep as well as in fishing. Eider down, from the eider duck, is one of the important products of the island. The people are highly educated. What is the capital of Iceland?

Review Questions

1. What is the relation of Denmark to Norway and Sweden? 2. What are the surface features? 3. How does the climate compare with that of Sweden? 4. What are the agricultural products? 5. State the chief facts about the other industries. 6. Name and locate the capital. State the kind of government. 7. Name and locate the colonies of Denmark. 8. State the principal facts about Iceland.

Suggestions

1. Make a sketch map of Denmark. 2. What part of North America is in the same latitude as Denmark? 3. Hans Christian Andersen was a native of Denmark. What fairy stories do you know that were written by him?

3. THE NETHERLANDS (FIG. 347)

Map study

1. Compare the area of the Netherlands with that of Denmark. With that of the State of Maryland. 2. What large river crosses the Netherlands? Through what countries does it flow? 3. What countries border the Netherlands? 4. What sea lies west of this country?

FIG. 406.—Map to show the portion of the Netherlands that is below sea level.

This little country is often called *Holland*; but the nature of the country

FIG. 408. — A Dutch windmill, used for pumping the water from the low lands behind the dikes.

country is a low plain, partly the delta of the Rhine River. Indeed, much of it is even lower than the surface of the sea, and in some places the country is as much as fifteen feet below sea level. If there were no protection against the sea and the river, about one half of the country would be under water at times.

In order to live on this very low part, the inhabitants have built embankments, called *dikes*, to keep the sea out, and have dug canals to drain the land. The water that collects inside the dikes is pumped out by windmills (Fig. 408), or by steam. Canals extend in all directions, and furnish excellent highways for travel. They are, in fact, among the most important highways (Fig. 407), being used in summer for boats, and in winter for skating and sledding.

Nature of the country

is more clearly shown in its other name, *The Netherlands*, which means *low lands* (Fig. 406). There is some hilly land in the eastern and southern parts, but most of the

Agriculture

The damp, level land is well suited to agriculture, and this is the principal industry. The leading farm products are grains, such as rye, oats, wheat, barley, and buckwheat.

FIG. 409. — A Dutch scene. Cattle feeding in the rich pastures of Holland.

Potatoes, sugar beets, beans, peas, and flax are also grown. There are many gardens, including flower gardens where bulbs are raised. The Dutch raise such excellent bulbs that they are sold over all the world.

More land is devoted to pasture (Fig. 409) than to all these crops. This is largely because the moisture in the lowlands aids in the growth of excellent grass. Cattle, hogs, sheep, and horses are raised in great numbers; but cattle raising and dairying are the most important industries. The dairy products, especially butter and cheese, are shipped to other countries.

Fishing

Both the Zuider Zee and the North Sea, near at hand, contain many food fish; and this has made fishing an important Dutch industry.

Manufacturing

In so level a country there can be little water power; and there is no coal, and little other mineral wealth. One might not, therefore, expect to find much manufacturing. There is, however, an abundance of coal near by, in Belgium, Germany, and England. And, since the Dutch people require quantities of cloth, shoes, machinery, and other manufactured articles, they import both coal and some of the raw materials in order to manufacture for themselves.

The Hollanders, or Dutch, as they are usually called, have been great explorers. They once had possession of the Hudson Valley, even the part where New York City now stands; and they still own some of the richest islands in the East Indies. What part of South America belongs to The Netherlands? The Dutch have much commerce with their colonies, as well as with other parts of the world.

Navigation and commerce

FIG. 410.— A canal in the city of Amsterdam.

In their commerce they are aided greatly by the rivers and the many canals, which cross the country in every direction and offer a cheap means of transportation. The most important interior waterway is the Rhine River, which is navigable entirely across Germany. Therefore, much of the trade of Central Europe with America and other parts of the world, is carried on through Holland.

Principal cities

AMSTERDAM and ROTTERDAM are the two principal cities. The former, the largest city in The Netherlands, is about the size of Baltimore. It is connected with the ocean by canal, and is noted for its shipping, manufacturing, and diamond cutting. The kings of Holland are crowned at Amsterdam, although they live at THE HAGUE, where the government buildings are situated. The government is a limited monarchy.

ROTTERDAM, next to Amsterdam in size, is the chief seaport of The Netherlands. Its location, near the mouth of the Rhine, makes it one of the principal ports for entrance to the interior of the continent. This is why Rotterdam is the European terminus for some of the important steamship lines from New York and other parts of the world.

FIG. 411. — A view in the hilly southern portion of Belgium.

Review Questions

1. What is the nature of the country? 2. How has its condition been improved? 3. What are the chief agricultural products? 4. Tell about fishing. 5. Account for the importance of manufacturing. 6. What can you tell about the colonies? 7. What facts favor commerce? 8. Name and locate the principal cities.

Suggestions

1. Find out something about the Dutch flower gardens, where bulbs are raised. 2. Find out why the Pilgrims went to Holland before coming to America? 3. What reasons are there for selecting so small a country as The Netherlands for the peace conferences held at The Hague? 4. Tell what you would expect to see in crossing Holland on a train? 5. What would result, if a dike were to give way? 6. Who is the present monarch?

4. BELGIUM (FIG. 347)

Map study

1. How does Belgium compare in area with Maryland? With Maine? 2. What countries border Belgium? 3. Draw an outline map of Belgium. 4. Does any part of the United States reach as far north as the latitude of southern Belgium?

Area and population

Holland is smaller than Denmark, but Belgium is even smaller than Holland. Yet it contains more people than The Netherlands, and is, in fact, the most densely settled country in Europe. Find its area and population in the Appendix, and compare it in these respects with your own State.

Government

Belgium, together with parts of France and The Netherlands, once formed the country of *Flanders*, and nearly half the Belgian people still speak the *Flemish* language. Since 1830, Belgium has been an independent country, and the present form of government is a limited monarchy.

The northern part of Belgium is a low plain, but the southern half is much higher, and in places is hilly (Fig. 411).

Most of the kingdom is well suited to agriculture, and more than half the inhabitants are engaged in that occupation. The chief products besides live stock are grain, flax, hemp, fruit, and sugar beets. Among the farm animals, the Flemish horses are especially noted for their great size and strength.

Agriculture

Fig. 412.— Women in Belgium taking milk to market in a cart drawn by dogs.

In Belgium the method of farming is very different from that in the United States. Instead of farms of from one hundred to several thousand acres, as in our country, the Belgian farms usually contain not more than two or three acres. To a large extent, spading takes the place of plowing; and such hand labor, guided by the experience of many generations, secures large crops of the best quality. In spite of such careful cultivation of the soil, however, there are so many people in Belgium that much food has to be imported.

Fig. 413. — A Belgian woman working at the spinning wheel. There is much of this hand work in Belgium.

In the hilly southern part of Belgium there are valuable minerals, especially coal and iron. And, as in England, these two minerals occur near together. Lead, zinc, and silver are also found here; and there is much quarrying of marble and other building stones. More than one hundred thousand men are engaged in mining, and coal is one of the leading exports.

Mining

The northwest slope of the hilly region is one of the world's busiest industrial regions. As in England, the most important kinds of manufacturing are cotton, wool, and iron and steel. Linen and glass also are made. The country is so small, and there are so many waterways and railways, that coal can be carried cheaply to all sections. Manufacturing, therefore, is carried on in all parts of the kingdom, although coal is found only in the south. As a great manufacturing country Bel-

Manufacturing

gium may be compared with Germany and Great Britian.

Like Holland, Belgium is a gateway to and from the interior of Europe. There is no large river, like the Rhine, but two smaller streams, rising in France, are navigable for some distance across the plain. There is also an extensive system of canals.

Commerce

Brussels, the capital and the largest city, is situated in the center of the kingdom. The name *Brussels carpets* suggests one of its industries; but carriages and lace are at present among its most important manufactures. It is a beautiful city, with many picture galleries, museums, and public buildings.

Principal cities

FIG. 414. — Some of the quaint houses of Ghent facing one of the canals on the low plain of northern Belgium.

Besides these waterways, Belgium has more miles of railway, for its size, than any other country. Partly for these reasons the transportation of goods is one of the leading industries.

The Belgians do not possess such valuable colonies as do the Dutch, but they have been prominent in African exploration. It was the Belgian king who sent Stanley to Africa, and the Congo State is a Belgian colony.

ANTWERP, next in size, is about sixty miles from the sea, on the broad lower course of the small Scheldt River. Some of the great steamship lines from New York have their European terminus here, and the port is one of the busiest in Europe. The leading kinds of manufacturing are sugar refining, distilling, lace making, and ship building.

Many other cities and towns are important manufacturing centers. The largest are LIÈGE, the "Birmingham of Belgium," engaged in the manufacture of firearms, cutlery, glass, and various kinds of machinery; and GHENT (Fig. 414), noted for linen and cotton goods, and for machinery.

Review Questions

1. What about the size of this country? 2. What was Flanders? 3. What is the kind of government? 4. What crops are raised? 5. What is the condition of agriculture? 6. Of mining? 7. What can you say about manufacturing? 8. How is commerce favored? 9. What colony has Belgium? 10. Locate and state important facts about the principal cities.

Suggestions

1. Towns in Belgium are often known by two names. Why? 2. Figure out the number of persons per square mile (See Appendix), in Belgium and compare it with the number in New York, or in your own State. 3. Find out some facts about the battle of Waterloo, which was fought in Belgium. From what material is lace made, and how is the work done? 5. Sketch The Netherlands and Belgium together, putting in the chief cities. 6. Make a sand map of them, showing elevation of the land, and the position of some of the dikes.

5. SPAIN AND PORTUGAL (FIG. 361)

Map study

1. What cities in the New World are in about the same latitude as Madrid (Fig. 361)? 2. Compare the area of the Spanish peninsula with that of France (See Appendix); the population. 4. Compare the directions taken by the rivers (Fig. 319). 5. What mountains are on the eastern border? 6. What plateaus and what mountains do you find in the Spanish peninsula? (See Fig. 319.) 7. What islands in the Mediterranean Sea belong to Spain?

There are several important facts that have prevented Spain from holding a high rank among the nations of Europe. One of these is that a large part of the Spanish peninsula is too mountainous and rugged for agriculture. Most of it is a plateau, or table-land, a half mile or more above the level of the sea; and this is crossed by several mountain ranges. The Pyrenees, which extend along the northern border, are lofty mountains; but a range on the southern side, called the Sierra Nevada, is even higher. It has peaks almost as high as those of the Alps. Only along the coast, and in a few of the river valleys, is there much low land. Name and trace the principal rivers.

Reasons why Spain is not one of the Great Powers

1. Mountains and plateaus

The peninsula lies so far south that its climate might be expected to be warm like that of Italy; but while there are some small sections low enough to have a warm climate, most of the peninsula is so elevated that its winter climate is cool.

2. Climate

Lack of rain is another serious drawback. The Spanish peninsula lies south of the belt of west winds, so that vapor is not brought from the ocean as freely as it is in the countries farther north. Much of the land, therefore, is arid; only along the northern and western coasts, including much of Portugal, is there enough rainfall for agriculture.

The people of Spain and Portugal have not been progressive in recent times, which is the greatest disadvantage. At the time of Columbus they were leaders in exploring the world; but since then they have been very slow to advance. They have lost most of their many colonies, chiefly because their methods of government were old-fashioned and cruel. Partly for this reason these nations have become of less and less importance. While England, France, and Ger-

3. Backwardness of the people

many have gone steadily forward, Spain and Portugal have fallen far behind.

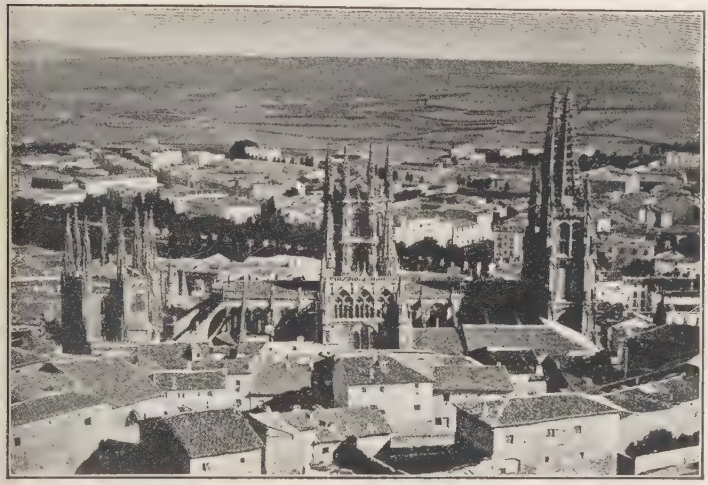


FIG. 415.—A village on the plateau of Spain.

Spain is a limited monarchy, and so was Portugal until very recently. In 1910, however, the king of Portugal was expelled from the country, and a republic was established.

Government

Grazing is the principal industry on the arid plateau and on the mountain sides. Cattle, sheep, goats, horses, and mules are raised there. The sheep often wander about in large flocks, sometimes as many as ten thousand together, under the care of a number of shepherds and their dogs. In summer they feed among the mountains, but in winter they are driven down to the more protected lowlands for shelter.

Grazing

There is farming in the rainy section, and wherever the mountain streams make irrigation possible. For centuries the Spaniards have made use of irrigation, and they introduced it into the New World. The chief crops are wheat, corn, and other grains. Quantities of grapes are raised in Spain and Portugal.

Agricultural products

The arid southeastern coast is very productive. One reason for this is the warm climate, due to the Mediterranean (p. 268); another is the number of mountain streams, which supply water for irrigation. Some of the products of this section, besides wheat and corn, are cotton, grapes, olives, figs, dates, oranges, lemons, and rice. Yet this part of Spain is in the same latitude as Virginia.

A peculiar product of the southern part of the peninsula is cork, which is obtained from the bark of a tree, called the cork oak. Much cork is exported.

The Spanish peninsula is remarkably rich in minerals, — lead, silver, copper, and *quicksilver*, or mercury, being among the most valuable. Spain produces more quicksilver than any other country, and the

Mining

FIG. 416.—A Spanish peasant bringing vegetables to market in his donkey cart.

United States is the only country that produces more copper and lead. Coal and iron ore are also found in several parts of the peninsula, but the coal is of no great value. The iron, which is found mainly on the northern slope of the Cantabrian Mountains, occurs in large beds, and is very valuable.

Manufacturing and commerce

There is little manufacturing in either Spain or Portugal, though there is some in the cities. Even most of the iron ore is sent to other countries to be smelted. One reason for the small amount of manufacturing is that the people are very backward. This is well shown by the fact that two thirds of the Spaniards, and three fourths of the Portuguese, cannot read.

Neither Spain nor Portugal has much commerce, though they were once among the leading commercial nations of the world. One might infer that the Spanish peninsula would have great commerce, since it lies between the two busiest seas in the world. The backwardness of the people is one reason for the lack of commerce; and another is the nature of the country. The mountains and plateaus serve as barriers to travel, and tend to separate the two seas instead of connecting them.

Fig. 417.—Country people, or peasants, of Spain in native costume.

There are not many railroads, and the rivers are of little use in transportation. Most of the rivers have too little water for navigation, and as they descend from the plateau their courses are too rapid. Many of them flow in deep, narrow valleys, like our Western canyons, so that they are a hindrance to travel instead of an aid. The principal exception is the Guadalquivir (meaning Great River), which has a wide valley. Boats can go up this river as far as Seville.

Principal cities of Spain

1. Madrid

Madrid, the capital and the largest city of Spain, has more than a half million inhabitants; but unlike most other large cities so far studied, it is not an important manufacturing center. The reasons for its size are its central location and the fact that it is the seat of the government. All the principal railway lines crossing the peninsula to connect the coastal cities converge at this point.

Madrid, with its wide streets, magnificent royal palace, and one of the finest art galleries in the world, is a very attractive city. The surrounding country, however, is far from attractive; for from the streets of Madrid one looks across the country for miles and miles, seeing not a tree, or fence, or house; only the weeds and scattered vegetation of an arid waste. One of the most frequented places in Madrid is an enormous building, with seats for many thousands, in which bullfighting takes place (Fig. 418). This brutal sport is enjoyed by most of the Spaniards as is a baseball or football game by people in our country.

2. Cities in southern Spain

Another place of note among the highlands of Spain is Granada, the last stronghold of the Moors, who invaded Spain from Africa,

centuries ago. Granada is now a small and unimportant city, and its principal attraction is the Moorish palace, or Alhambra (Fig. 419), one of the finest examples of Moorish architecture.

manufacturing center as well. The region about Valencia is a beautiful garden, much like that around Los Angeles in southern California. The two regions are much alike both in climate and products.

FIG. 418.- A bull fight watched by thousands of spectators.

On the lowlands west of Granada are SEVILLE and CADIZ, both flourishing cities in former days, when vast stores of plunder were brought from Spanish colonies in the New World. CADIZ is now a fortified naval harbor; and SEVILLE is recovering some of her former commercial importance. It has some manufacturing, especially of tobacco.

MALAGA, which has one of the warmest climates in Europe, is engaged in the shipment of wine, raisins, and grapes. Of what grape does the name remind you?

Principal seaports

BARCELONA and VALENCIA are the leading seaports. Barcelona, the second Spanish city in size, is the most important port and is a textile

Colonies of Spain

The only remnants of her vast foreign possessions now left to Spain are mainly in Africa. These include a few small settlements on the coast of Morocco; a portion of the western coast of Sahara, having little value; and a coastal strip on the Gulf of Guinea, with a few small islands near by. The *Canary Islands*, west of the northern coast of Africa, and the *Balearic Isles*, in the Mediterranean, also belong to Spain.

Gibraltar

GIBRALTAR, a steep hill, with cliffs rising boldly on nearly all sides, and with a town at its base, has belonged to England for over two centuries. This hill of solid

rock (Fig. 420) is, perhaps, the strongest fortification in the world, and guards the entrance to the Mediterranean.

Principal cities of Portugal

LISBON and OPORTO are the chief cities of Portugal. The former, the capital and metropolis, is a very beautiful city. It lies on a broad bay where the Tagus River enters the sea, and has one of the finest of harbors. The lower part of the Douro Valley is one of the richest wine districts in Europe; and OPORTO is an important point for its export.

Colonies of Portugal

Portugal, like Spain, has lost much of her foreign territory. The *Azores Islands*, far to the west in the Atlantic, and the *Madeira Islands* to the southwest, belong to this country. The *Cape Verde Islands*, off the west coast of Africa, are also dependencies. In addition, Portugal has large possessions in Africa, and some small ones in Asia.

FIG. 419. — The Court of Lions in the Alhambra.

Review Questions

1. What are the surface features of the peninsula? 2. What is its climate? 3. How has the backwardness of the people been a disadvantage? 4. What is the form of government of each country? 5. State the main facts about the grazing. 6. Name the farm products. 7. What minerals are found? 8. Why is manufacturing of so little importance? 9. What can you tell about commerce? 10. Locate and state the principal facts about Madrid. 11. About cities in southern Spain. 12. About the principal seaports of Spain. 13. Name and locate the colonies of Spain.

FIG. 420. — The rock of Gibraltar, seen from the Spanish mainland.

14. For what is Gibraltar important? 15. Locate the principal cities of Portugal, and tell how each is important. 16. What colonies has Portugal?

Suggestions

1. About what portion of the boundary line between Spain and Portugal is formed by rivers? 2. Find out what happened when Portugal became a Republic. 3. Look in the report of the Twelfth Census to see what per cent of our population cannot read. 4. Examine some quicksilver. What are some of its uses? 5. Find out something about the Moors, and the Alhambra, in southern Spain. 6. Find pictures of Moorish architecture. 7. Read Washington Irving's *The Alhambra*. 8. Make a sketch of the Spanish peninsula, including the principal mountains, rivers, and cities. 9. Make a sand map of the peninsula.

6. Switzerland (Fig. 385)

Map study

1. What countries surround Switzerland? 2. What mountains extend along the boundaries of Switzerland? 3. Which of the boundaries is least mountainous? 4. What large rivers rise among the Alps? In what direction does each flow, and into what body of water does it empty? 5. How does the area of Switzerland compare with that of your own State?

Languages and government

Switzerland is the only country of Europe, thus far studied, that has no seacoast. Neither has it a language of its own. Notice what countries surround it. Although it is very small, most of the inhabitants of the southern part speak Italian; those in the western, French; and those in the northern and eastern parts, German. The most common language is German.

This is one of the four European countries that is not a monarchy. Name the other three. The Swiss people, living among the mountains where they could easily defend themselves, or hide from their enemies, declared themselves independent of kings hundreds of years ago, and the country has long been a republic. The republic consists of twenty-two small states, or *cantons*, united somewhat as are our states.

Surface features

The many lofty mountains seriously interfere with agriculture (Fig. 322). The Alps extend completely across the country, and the Jura Mountains skirt the northwestern boundary. These mountains are so rugged that few people live among them, except in the valleys. Between the two mountain districts, however, is a narrow plateau where the surface is much less rugged. It is here that most of the people dwell.

Climate

1. Temperature

We have already learned that the climate of a mountainous country is cool, and that the temperature is lower in high altitudes. At the base of the Alps, chestnut and walnut trees flourish; higher up, these give place to the beech, maple, and other trees of the cool temperate zones; and still higher is a belt of evergreens. Above these come dwarfed trees, shrubs, and grass; and higher still, at an average elevation of about nine thousand feet, the snow line is reached (Fig. 421).

2. Rainfall and glaciers

The lofty Alps condense so much vapor that Switzerland is one of the wettest countries on the continent. On the higher mountains much snow falls; and, sliding down the mountain sides in the form of avalanches, it gathers in the valleys to produce streams of ice, or *glaciers* (Fig. 421). These move slowly down the valleys until they reach a point, below the snow line, where the

ice melts. The Rhone and other rivers are supplied with water by the melting of the Alpine glaciers.

Switzerland is so mountainous that only one acre in nine is fit for the plow.

Agriculture

Yet agriculture is the leading industry of the country. Among the chief farm products are grain and potatoes, raised mainly on the plateau. On the lower lands, especially near the German border, there are extensive vineyards. There is excellent pasturage for cattle and goats among the mountains, and these animals are raised there in great numbers (Fig. 422). In spring and summer, as the snows melt from the mountain sides, the goats and cattle are driven to higher and higher pastures (Fig. 421). Such a pasture is called an *alp*, and this is the origin of the name of the range, the Alps.

Lumbering and manufacturing

Where the mountain slopes are too rugged for farming, there is much forest. Therefore, lumber is an important product of the country.

Fig. 421. — Cattle grazing in the mountain pastures high up in the Alps near the snow line.

Although there is no good coal in Switzerland, the Swiss do a large amount of manufacturing. Among their principal products are wine, butter, and cheese. Wood carving is also an industry in which many of the Swiss find employ-

FIG. 422. — Cattle on the slopes of the Alps.

ment. During the long winters, the wood from the mountains is shaped into toys, clocks, and other articles. Have you ever seen a Swiss clock?

The Swiss have become widely known for their manufacture of textile goods, such as lace, linen, silk, and cotton goods. They also make much jewelry, especially watches. In some of this work, water power is used, for an abundance of power is supplied by the mountain streams. The Swiss are taking a leading place in the production of electricity by water power, carrying it by wire to distant factories.

Much of the manufacturing, however, is done by hand in the homes of the workmen, rather than in large factories. From these statements it may be seen that the Swiss people are very skillful, progressive, and well educated.

Commerce

There is so much manufacturing that the Swiss need to import many raw materials; and they must distribute their manufactured products. This calls for extensive commerce; but naturally this is not ocean commerce. Why?

Their central position among European countries is favorable to inland commerce, and this has become highly developed. It cannot be carried on over interior waterways, for the mountain streams are too swift and shallow for navigation. There is, however, some navigation on the larger lakes.

For their commerce the Swiss have been obliged to depend mainly upon roads and railways. It has been no easy matter to build such highways in so mountainous a country, but

FIG. 423. — A Swiss peasant girl in native costume.

it has been done. No country in the world has better wagon roads than Switzerland; and no country has overcome greater difficulties in the building of railways.

Railroads pierce the mountains in several directions, connecting Switzerland with foreign countries. One of the most important is the St. Gothard Railway, which connects Switzerland with Italy by the St. Gothard Tunnel. This is one of the longest tunnels in the world, and is a marvel of engineering skill. Before reaching the main tunnel, in traveling north, several smaller ones are entered, through which the train winds in a spiral course. A passenger twice comes out of the mountain almost directly over the point where he entered it. There, far below him, he can see the two places at which the train entered (Fig. 424). Such winding tunnels are necessary, because the grade is so steep that a train could not be drawn directly up a straight track. The main tunnel, which is nine and one fourth miles long, is quite straight. The *Simplon Tunnel*, even longer than the St. Gothard, now pierces the Alps a short distance farther west; and a third one, nearly five miles long, connecting with the Simplon Road, has been completed.

FIG. 424. — The St. Gothard Railway on the south side of the Alps. Here are three tracks one above the other, for the railway enters the mountain and swings around in two great circles, coming out each time at a higher level.

Scenery and tourists

While the mountains have interfered with the building of roads and railways, and with agriculture, they are of great value to Switzerland in another way. They present such wonderful scenery that Switzerland is the most noted summer resort of Europe; and the entertainment of visitors is one of the leading occupations.

There are so many hotels and so many fine roads, that one can easily go in almost any direction. It is possible to reach even the tops of several of the mountains by rail. Every summer many Americans cross the ocean to enjoy the Swiss scenery.

FIG. 425. — The snow-capped Alps as seen from Mt. Pilatus, with Lake Lucerne in the foreground.

Many of the Swiss cities and towns are beautifully situated upon lakes, and within sight of mountain peaks always covered with snow. LUCERNE, for example, is surrounded by grand and varied scenery. The city is on Lake Lucerne, and lofty mountains rise close at hand (Fig. 425). Mounts Rigi and Pilatus are near, and from their summits one obtains wonderful views of the lake, more than four thousand feet below, bordered by green meadows and numerous villages. In several directions, as far as the eye can reach, are the snow-covered crests of stupendous, jagged mountains.

Leading cities

ZURICH, the largest city in Switzerland, is situated on Lake Zurich. It is an important railway center, being connected with Italy by the St. Gothard Railway, while other railways bring it into touch with France, Germany, and Austria. These railways are especially valuable, bringing foods, as well as silk and other raw materials, for manufacture. Therefore Zurich is the center of one of the principal manufacturing districts. It is noted for the manufacture of silks, cotton, chocolate, and machinery.

BASEL, the second largest city in Switzerland, is the busiest railway center in the country. It is on the main line of the St. Gothard Railway, and on the Rhine at the point where it enters Germany from Switzerland. Why is its position, near both France and Germany, favorable to manufacturing?

GENEVA, situated on the lower end of Lake Geneva, near where the Rhone enters France, is the third city of the republic, and a noted educational center. There is much manufacturing, among the important articles made being jewelry and scientific instruments.

BERNE, the capital, is centrally located; but it is a small city because it is not favorably situated for commerce.

Review Questions

1. What languages are spoken? 2. What can you tell about the government? 3. Describe the surface of Switzerland. 4. The climate. 5. State the principal facts about agriculture. 6. About lumbering and manufacturing. 7. What is the condition of commerce? 8. Tell about the roads and railways. 9. Why is Switzerland so attractive to tourists? 10. Locate and state the main facts about Zurich. 11. Basel. 12. Geneva and Berne.

Suggestions

1. What reasons are there for giving particular attention to the study of English and other foreign languages in the Swiss schools? 2. Why has Switzerland, unlike many European countries, not come into possession of colonies? 3. Find the meaning of "referendum" and "popular initiative" in Swiss legislation. 4. Switzerland has long been selected as a place of refuge for persecuted people and political refugees from other nations. Why? 5. Read that portion of the story of William Tell which is supposed to have occurred about Lake Lucerne. 6. Write a story describing a visit to Switzerland.

7. GREECE (FIG. 385)

Map study

1. What country borders Greece on the north? 2. What seas lie on the eastern and western sides? 3. Locate Corfu and the Ionian Islands, which are a part of Greece. 4. Make an outline map of Greece.

Surface and climate

Greece occupies the southern end of a large peninsula, called the Balkan Peninsula. Owing to many short mountain ranges, extending in different directions, the surface of the country is quite rugged, and large sections are unfit for farming. Yet there are many small, fertile valleys. The coast line is very irregular, with numerous peninsulas, islands, deep bays, and fine harbors, formed by the sinking of the mountainous land.

The Mediterranean causes a warm, pleasant climate, as in southern Italy. In Greece, however, as in Italy, the

rainfall, which is moderate in winter, is so light in summer that irrigation is necessary for agriculture.

Its former greatness

Italy, Spain, and Portugal were once far more important, in comparison with other countries, than at present. The same is true of Greece.

The country in Europe that has perhaps had the greatest influence upon the rest of the world is this small one. The Romans received many of their beliefs and customs from Greece, and since many of our customs came from the Romans, we also are greatly indebted to the Greeks. They were a highly cultivated people, and the beauty and artistic perfection of their sculpture, and of some of their buildings, have never been equaled.

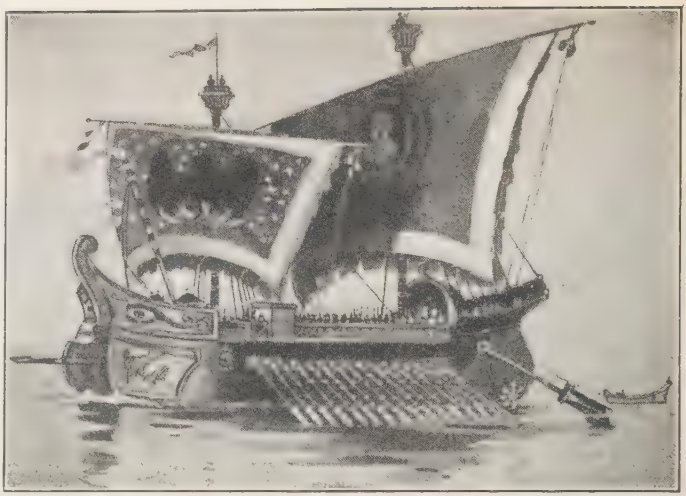


Fig 426.— A Greek ship, used 700 years before Christ. Besides sails, long oars were used for driving the boat through the water.

Its later history

Rome finally conquered Greece, and became the leading country of the world. After the decline of the Roman Empire, other people from the north invaded Greece; and finally the Turks entered the country and carried ruin to this, as to other parts of the Balkan Peninsula. Greece is now independent, and is a limited monarchy.

Principal industries

In this little country there are few natural resources. There is no coal, and therefore little manufacturing. There is some mining of iron ore, lead, and zinc; but the principal occupations are herding and farming. Large numbers of sheep and goats are raised; and the chief farm products are grain, tobacco, olives, and fruits. Among the latter is the small variety of grape known as the currant. Currants, together with raisin grapes, are cultivated in large quantities on the steep hillsides; after being gathered, they are spread out to dry, and are sold as dried fruit.

Fig 427.— A Greek peasant in native costume.

The neighborhood of the sea led the ancient Greeks to adopt a seafaring life, and they still carry on an extensive foreign trade. Many are also engaged in fishing, and in securing bath sponges from the shallow sea bottom among the Greek islands.

Leading city

The capital and the most important city is Athens, once the most famous city of the world. It was a well-known city at the time of

Christ, and both Athens and Corinth are mentioned in the Bible. Athens is still an important city, with more than a hundred thousand inhabitants. It is situated inland six miles from its port, PIRÆUS. The principal streets of Athens are quite modern; but ruins of the ancient city are still numerous. The most noted buildings, and some of the finest temples of ancient Greece, stood upon the Acropolis (Fig. 428), a level-topped, rocky hill with steep sides. This stronghold was the natural center for settlements on the surrounding plain.

FIG. 428. — The Acropolis at Athens.

Islands near Greece

The many islands in the neighborhood of Greece are either tops of mountains rising out of the sea, or else volcanic cones. Now and then we hear of an earthquake shock in this island region, or *archipelago*, showing that the mountains are still growing. The largest island near Greece is *Crete* (Fig. 318), which, like the smaller islands, is inhabited mainly by Greeks. It is still controlled by the Turks.

1. Describe the surface and climate of Greece.

Review Questions

2. Tell about its former greatness. 3. State facts about its later history. 4. What are the principal industries? 5. Tell about the leading city. 6. What can you say about the islands near Greece?

Suggestions

1. Read some stories of the ancient Greeks. One of the most interesting is the Odyssey. 2. Learn some facts about Homer, Plato, and other noted Greeks. 3. Read about the defense of the Pass of Thermopylæ. 4. Collect pictures of the ruins in Athens.

8. Turkey and Balkan Countries (Fig. 385)

Map study

1. Bound each of these countries. 2. Trace the course of the Danube. 3. What countries lie south of the Danube. 4. How does the number of large cities here compare with the number in Germany? 5. Compare the area of Turkey in Europe with that of your own State. 6. Find the straits of Bosporus. The straits called the Dardanelles. 7. What is the name of the sea between these two straits?

Boundaries and surface features

These countries are situated on one of the largest peninsulas of Europe, called the Balkan Peninsula. It is bounded on the west by the Adriatic and Ionian Seas, and on the east by the Black and Ægean Seas. Since the peninsula broadens toward the north, it has a very long land boundary, extending from the mouth of the Danube River to the head of the Adriatic Sea.

On the whole, this is a very mountainous peninsula, though there are many valleys and small plains among the mountains. One portion, in northern Bulgaria and Roumania, is a broad plain crossed by the Danube.

Climate

In so mountainous a country there are different kinds of climate. On the lowlands, along the southern and western coasts, the climate is warm, as elsewhere near the Mediterranean. But in the northeast, near Russia, while the summers are warm, the winters are very cold. In that season, icy winds sweep down from the Russian plains, and the Danube freezes over. The mountain slopes also have a cold climate.

There is also much difference in rainfall. On the slopes of the mountains, and in the northern part of the peninsula, there is rainfall enough for agriculture. But in some of the interior valleys, and in parts of the southern part of the peninsula, there is so little rainfall in summer that irrigation is necessary.

Fig. 429. — A Turkish woman in Constantinople.

Closeness to Asia; effects on plants, animals, and people

The eastern part of the Balkan Peninsula comes so close to Asia that it has been called a "bridge" between Europe and Asia. At two points, the Dardanelles and the Bosporus (Fig. 433), the two continents are separated only by narrow straits. Animals and plants have crossed these barriers so easily that there is a mixture of European and Asiatic species in that part of Europe.

This region has also been a bridge for the passage of many peoples. Romans, Slavs, and finally the Mohammedan Turks from Asia, have brought the Balkan Peninsula under their rule. Wherever the Turks went, they brought ruin; and for four centuries, while the rest of Europe was advancing, they held this region in such control that almost all progress was checked. During the nineteenth century, however, many of the people have thrown off

the Turkish yoke, so that the peninsula is now divided among several nations. To-day Turkey in Europe is less than one quarter as large as it was a hundred years ago.

Countries now occupying the Peninsula

Aside from Turkey, the separate countries of the Balkan Peninsula are Montenegro, Servia, Roumania, Bulgaria, and Greece. Each of these is now independent, Bulgaria, in 1908, being the last to throw off the Turkish yoke.

FIG. 430. — A Roumanian peasant in native costume.

Montenegro

The tiny country of Montenegro, which is smaller than the State of Connecticut, is of slight importance. Its soil is so poor that there is little agriculture; there is less manufacturing, and no railway. The principal occupation is cattle raising. *Cettinje*, the capital, has a population of less than five thousand.

Servia

Servia, next to Montenegro in size, has a very rugged surface, and much of the country is forest covered. Only a small portion is cultivated. Among the leading farm products are corn, wheat, and other grains, similar to those of Hungary, which borders Servia on the north. There is also much fruit, especially grapes and plums, which, when dried, are sold as raisins and prunes. Many cattle, sheep, and pigs are raised.

The industries of Servia are only partly developed. For example, although coal, iron, silver, gold, and other metals are known to exist, there is very little mining; nor is there much manufacturing. It will require more time to recover from the centuries of Turkish misrule.

The capital of the kingdom is BELGRADE, a city with a fine location on the navigable Danube.

Roumania and Bulgaria

Roumania and Bulgaria are separated by the Danube for a long distance. Thus, together, they control its lower course. This is a fact of much importance to Austria-Hungary. Why?

Broad plains, suited to agriculture, border the Danube in both countries, though the plains are far more extensive in Roumania than in Bulgaria. Naturally, therefore, there is much farming. In both countries wheat and other grains are among the chief crops.

Southern Bulgaria is protected from the cold north winds by the Balkan Mountains. It therefore has such a warm climate that the products differ much from those north of the mountains. Some of these are the mulberry for the silkworm, and roses for the valuable perfume, attar of roses.

The Turks, who are Mohammedans, have ideas and customs that are unlike those of other Europeans. They have

been unprogressive, and unwilling to grant rights to the many Christians who live in Turkey. Their ruler, or *Sultan*, until recently has had absolute power, which he has often used very cruelly; and the government has been the worst in Europe. Recently it has begun to improve. The majority of the Turks are both ignorant and poor; and they have not been encouraged to develop the resources of their land.

Turkey in Europe

1. Character of the people, and of government

Fig. 432. — A Turkish lady in native costume.

The extensive forests that once covered the mountain slopes have been nearly destroyed; and broad areas of farm land are cultivated by the crude methods of early centuries. Among the principal crops are wheat, corn, flax, hemp, and tobacco. Figs, and grapes for raisins, are also raised. Cattle and sheep are numerous, and tame buffaloes and oxen are in common use as farm animals.

2. Industries

Turkey supplies little except raw materials. Even valuable mineral deposits are almost unworked, and there is little manufacturing aside from hand-made goods. Among the latter are the famous Turkish rugs, and some very beautiful articles in leather and metal, showing that the Turks have much artistic skill. With so little industry, there is, naturally, almost no means of transportation; in fact the roads are everywhere bad, and there are almost no railways.

Constantinople, the capital of the Ottoman Empire, as Turkey is often

Fig. 433. — Constantinople and the Bosporus. The land on the other side of the strait is in Asia.

Fig. 431.— A street scene in Constantinople

called, has been famous for many centuries. Situated on the beautiful, river-like outlet of the Black Sea, called the Bosporus (Fig. 433), it commands the channel through which the commerce of the Black Sea must pass. This is a natural site for a city; for it is the point where the crossing from Europe to Asia can best be made.

3. Chief city

The site of Constantinople is so favorable for a city that it was the seat of a Greek colony even before the days of Christ. Later the Roman Emperor Constantine named the city after himself (*Constantine* and *polis*, meaning city), and made it the capital of the Roman Empire. For centuries it was noted as one of the richest and most prosperous cities of Europe.

After being captured by the Turks, however, it lost much of its beauty, though some of the ancient splendor still remains (Fig. 433). There are beautiful palaces, mosques, and other costly buildings; but side by side with them are the dwellings of the common people, who live in squalid poverty. The houses, street scenes, people, and customs remind one of Asia rather than of Europe. How does it rank in size with other large European cities? With the large cities of the United States? (See Appendix of Statistics.)

Review Questions

1. Describe the boundaries and surface of the Balkan Peninsula. 2. The climate. 3. What have been some of the effects of the nearness of this peninsula to Asia on plants, animals, and people? 4. What countries now occupy this peninsula? Locate each. 5. Tell what you can about Montenegro. 6. About Servia. 7. Name and locate the capital. 8. What are the agricultural products of Roumania and Bulgaria? 9. What can you say about the other industries? 10. Name and locate the chief cities. 11. What can you tell about the character of the people and government of Turkey? 12. What are the industries? 13. Why is the location of its chief city so favorable? 14. State the history and present importance of this city.

Suggestions

1. What is the boundary between Turkey in Europe and Turkey in Asia? 2. What parts of Africa and Asia belong to the Ottoman Empire? 3. Name the Balkan countries. 4. Name and locate the principal cities. 5. Russia would greatly like to get possession of Constantinople. Why? 6. Make a sketch map of the Balkan Peninsula, with boundaries of countries, the course of the Danube, and the position of the capitals.

General Review Questions

1. What countries of Europe suffer, to some extent, for want of rain? 2. What is the largest river of Europe? Is it the most important? Why? 3. What rivers rise in the Alps? 4. Through what countries does each flow? 5. What large cities are located upon each? 6. Make a sketch map of Europe, showing the location of the chief rivers and cities. 7. Name and locate the mountain ranges of Europe. Include these in your sketch. 8. On your sketch map, draw the boundaries of the countries. 9. What three countries are republics? 10. What two have a despotic form of government? 11. Which countries border on the Atlantic Ocean? 12. On the Mediterranean Sea? 13. Which have a very good position for commerce? Why? 14. Which have a very poor position for commerce? Why? 15. Name the leading agricultural countries of Europe. 16. Name the leading manufacturing countries. 17. Bound each of the Great Powers of Europe. 18. Name and locate the capital of each of these Great Powers. Put them on your sketch map. 19. Name the capital of each of the Lesser Powers.

Comparisons with North America

1. Compare the climate of western Europe with that of the west coast of North America. 2. Make the same comparison for the eastern parts of the two continents. 3. Which continent has the most irregular coast line? 4. Name and locate the principal mountain ranges in each continent. Which continent has the advantage as to the direction of the ranges? Why? 5. Name and locate the principal rivers in each continent. Which are the largest in each case? 6. How do our larger Western States compare in area with France and Germany? In population? 7. What is the prevailing

kind of government in Europe? In North America? 8. Which European country has the best location for world commerce? Why? 9. Which is the best situated for continental commerce? Why? 10. Which country of North America has the most favorable position for trade? How? 11. Compare in population the five largest European cities with the five largest in North America (See Appendix). 12. Name and locate the five largest seaports of Europe (Fig. 318). 13. How do they compare in population with New York, Philadelphia, Boston, Baltimore, and San Francisco? 14. Name and locate the five largest interior cities, and compare their population with that of Chicago, St. Louis, Cleveland, Pittsburg, and Detroit. 15. What cities of Europe and North America are near the 46th parallel of latitude? The 50th? The 60th? 16. Name some agricultural products common to both Europe and the United States. 17. Name others that are found in the United States, but not in Europe. Why this difference? 18. Name the chief wheat-producing countries of Europe and North America. 19. In what countries of Europe is raw silk produced? Why do we not raise silkworms? 20. Make a list of the European countries which have extensive coal deposits. 21. Which countries have little or none? What is the effect on the industries in each case? 22. Which countries have little or no mining? 23. Which countries have important manufacturing industries? Which have very little manufacturing? Give reasons for this difference. 24. With which group would the United States be classed with regard to mining and manufacturing? 25. Which of the European nations have you seen represented on our streets? 26. Which one of the European countries would you prefer to visit? Why?

ASIA
Scale of Miles
0 200 400 600 800 1000
Cities with over 1,000,000 Tokyo
Bombay
Cities with 200,000 to 500,000 Ningpo
Capitals with less than 200,000 COLOMBO
Rivers
ARCTIC OCEAN
SIBERIA
RUSSIA
CENTRAL ASIA
TURKESTAN
MONGOLIA
CHINESE EMPIRE
TIBET
PERSIA
AFGHANISTAN
ARABIA
INDIA
BAY OF BENGAL
ARABIAN SEA
INDIAN OCEAN
JAPAN
PACIFIC OCEAN
PHILIPPINE ISLANDS
FRENCH INDO-CHINA
SIAM
BORNEO
SUMATRA
MALAY PENINSULA
STRAITS SETTLEMENTS
CEYLON
MALDIVE ISLANDS
LACCADIVE ISLANDS
ANDAMAN ISLANDS
NICOBAR ISLANDS
MOLUCCAS OR SPICE IS.
London
Madrid
Paris
Berlin
Vienna
Rome
Constantinople
St. Petersburg
Moscow
Teheran
Cairo
Alexandria
Bombay
Calcutta
Madras
Delhi
Lahore
Lucknow
Benares
Rangoon
Bangkok
Singapore
Manila
Peking
Tientsin
Shanghai
Nanking
Canton
Hongkong
Tokyo
Kobe
Osaka
Nagoya
Yokohama
Seoul
Mukden
Hue
Tashkent
Bokhara
Kiev
Odessa
Tiflis
Smyrna
Aden
Muscat
Mecca
Medina
Jerusalem
Baghdad
Kandahar
Kabul
Peshawar
Simla
Agra
Allahabad
Mandalay
Hanoi
Saigon
Pondicherry
Goa
Bangalore
Hyderabad
Nagpur
Ningpo
Suchau
Hankau
Chungkiang
Fuchau
Siangtan
Changsha
Hanchau
Singan
Kiakhta
Urga
Tashkent
Samarkand
Khiva
Bokhara
Kirghiz Steppe
Lake Baikal
Yenisei
Lena
Yakutsk
Irtysh
Ob
Volga
Don
Dnieper
Danube
Black Sea
Caspian Sea
Aral Sea
Persian Gulf
Red Sea
Mediterranean Sea
Sea of Japan
Yellow Sea
Bering Sea
Sea of Okhotsk
Kamchatka
Tundras
Steppe
Desert of Gobi
Desert of Kiang
Desert of Sahara
Desert of Arabia
Desert of Persia
Desert of Thibet
Desert of Turkestan
Desert of Tartary
Desert of Siberia
Desert of Mongolia
Desert of Kirghiz
Desert of Sinai
Desert of Nubia
Desert of Libyan

PART V. ASIA, AFRICA, AUSTRALIA, AND ISLAND GROUPS

SECTION I. ASIA

Map study

1. Through what zones does Asia extend (Fig. 434)? 2. Where are the highest mountains and plateaus? 3. What large rivers have their sources in that region? In what direction does each flow? 4. In what sections are there extensive plains (Fig. 436)? 5. What large inland seas and lakes do you find which have no outlet? 6. What three large peninsulas are on the southern side? 7. What two are on the eastern side? 8. What islands lie east of Asia? 9. Name the large gulfs and seas along the coast. 10. How does Asia compare in size with Europe? 11. Find Asia on the globe. 12. How could you reach it, if you wished to go there? 13. What strait separates Asia from America? 14. What is the name of the isthmus connecting Asia and Africa?

1. General Facts about Asia

Area and population

The main part of Eurasia, which we call Asia, is larger than any other continent. Indeed, it is greater than North and South America together, or Europe and Africa together.

It has more inhabitants, also, than any other continent. More than one half of all the persons on the earth live in Asia; and in the one country of China there are more people than in all the countries of Europe combined.

It might be inferred that Asia would be one of the best known of the continents; for it has the oldest civilization, and is very near to Europe. Besides, a flourishing trade was carried on between Europe and the Indies, long before the New World was discovered. The fact is, however, that Asia, next to Africa, is the least known among the continents. Let us find some of the reasons for this.

Why little is known of Asia

In the first place, although Europe and Asia are close together, their leading countries are separated by arid country and desert, which is more difficult to cross than either mountains or the sea.

1. Because of arid and desert land in the west

The two great seas in southwestern Asia, the Caspian and Aral seas, have no outlets and are salt, although large rivers pour volumes of fresh water into them. What are the names of these rivers? How does the area of these lakes compare with that of Lake Superior, the largest of our Great Lakes (See Appendix)? While these salt seas are of great size, the fact that they have no outlets tells very clearly that the climate here is dry, for the water evaporates faster than the rivers can pour it in.

Most of the vast region between the Irtish River and Africa is either desert or arid land (Fig. 437). Estimate the

RELIEF MAP
OF
EURASIA
Modeled by
EDWIN E HOWELL
ARABIAN
SEA
EQUATOR
YELLOW
SEA

PHYSICAL MAP OF
ASIA
Scale of Miles
0 200 400 600 800 1000 1200
KEY
Over 6,500 ft.
From 1,650 to 6,500 ft.
From 650 to 1,650 ft.
From 0 to 650 ft.
From 0 to 6,500 ft.
From 6,500 to 13,000 ft.
Below 13,000 ft.
Sea Level
ARCTIC OCEAN
C. Deshnef
Chelyuskin
NOVA ZEMBLA
Kara Sea
TAIMYR PEN.
NEW SIBERIA IS.
WRANGELL IS.
Gulf of Anadyr
ARCTIC CIRCLE
BERING SEA
ALEUTIAN IS.
KAMCHATKA PENINSULA
SEA OF OKHOTSK
Cape Loputka
KURILE IS.
SAKHALIN ISLAND
STANOVOI MTS.
VERKHOIANSKOI MTS.
SIBERIAN PLAIN
Lena R.
Yenisei R.
Ob R.
URAL MTS.
Volga R.
Ural R.
CASPIAN SEA
BLACK SEA
CAUCASUS MTS.
Kuma R.
Terek R.
Kura R.
Aras R.
Sir R.
Amu R.
Tigris R.
Euphrates R.
Indus R.
Sutlej R.
Ganges R.
Brahmaputra R.
Irrawaddy R.
Salween R.
Mekong R.
Yangtse Kiang R.
Hoang Ho R.
Amur R.
Lake Baikal
Lake Balkash
Aral Sea
KIRGHIZ STEPPES
ALTAI MTS.
Plateau of Kobdo
Plateau of Mongolia
DESERT OF GOBI
YABLONOI MTS.
KHINGAN MTS.
Plains of Manchuria
TIAN SHAN
KUENLUN
NAN SHAN
HINDU KUSH MTS.
SARIKOL MTS.
HIMALAYA MTS.
Mt. Everest
PLATEAU OF TIBET
Plains of Turan
Plateau of Iran
ELBURZ MTS.
Plateau of Asia Minor
TAURUS MTS.
Mt. Ararat
Armenian Highlands
Syrian Desert
Dead Sea
Mt. Sinai
Plains of Mesopotamia
Persian Gulf
PLATEAU OF ARABIA
PENINSULA OF ARABIA
Great Arabian Desert
RED SEA
MEDITERRANEAN SEA
CYPRUS
CRETE
NORTH SEA
AFRICA
EUROPE
ASIA
Great Plain of China
Yellow Sea
JAPAN SEA
NIPON
Fujiyama
SHIKOKU
KIUSHIU
EAST CHINA SEA
LIUKIU IS.
FORMOSA
PACIFIC OCEAN
TROPIC OF CANCER
HAINAN
LUZON
PHILIPPINE ISLANDS
MINDANAO
INDO CHINA PENINSULA
Gulf of Siam
Cambodia
PALAWAN
SOUTH CHINA SEA
BAY OF BENGAL
ANDAMAN IS.
NICOBAR IS.
Strait of Malacca
MALAY PENINSULA
SUMATRA
BORNEO
CELEBES
MOLUCCA SEA
SULU SEA
NEW GUINEA
EQUATOR
ARABIAN SEA
LACCADIVE ISLANDS
Cape Comorin
MALDIVE ISLANDS
CEYLON
Plateau of Deccan
WESTERN GHATS
EASTERN GHATS
PLAINS OF INDIA
INDIAN OCEAN
Longitude East from Greenwich

FIG. 436.

FIG. 437. — A caravan on the desert of Persia.

distance across this arid country from east to west. When you realize that it is two or three thousand miles, you can see what a barrier this section must always have been to commerce and to acquaintance between the people of the two continents.

2. Because of the extreme cold in the north

In the second place, we can readily see why Siberia — which makes up more than one fourth of the whole continent — should have been little visited, for most of it is a very cold country. Note how much of it lies in the frigid zone. In this section, called the *tundras*, the ground is frozen to a great depth all the year round.

The main slope of this vast plain is toward the north. Trace its three great rivers. What are their names? Like the Mackenzie River in North America, they have been of little help in exploring the country. Why?

For several reasons, the vast central portion of Asia also has been difficult to explore. On Figure 435 observe how

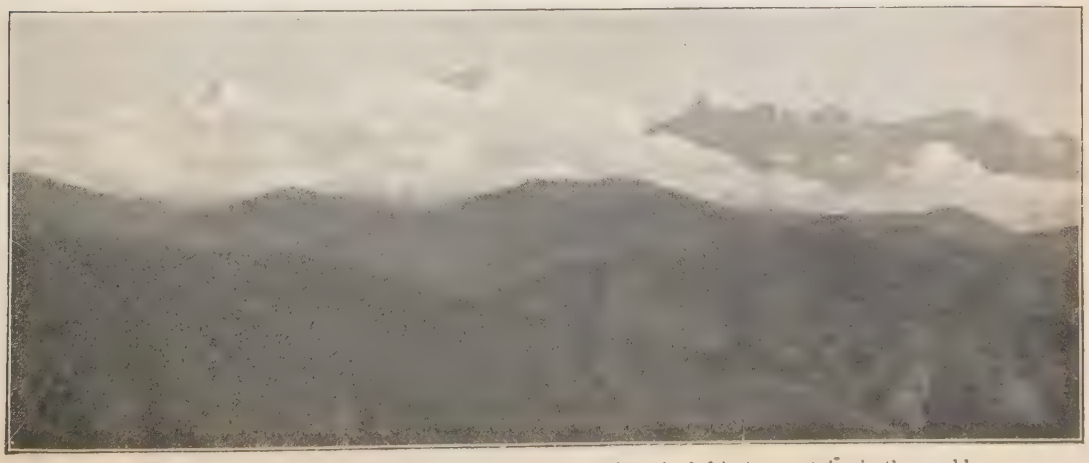


FIG. 438. — The Snowy Range in the Himalaya Mountains, the loftiest mountains in the world.

many mountain chains are found there. Among them are the Himalayas, just north of India, the loftiest mountain range in the world (Fig. 438). Mt. Everest, the highest peak, rises over twenty-nine thousand feet, or five and one half miles above the level of the sea. Find this mountain on Figure 434. How does it compare in height with Mont Blanc in the Alps? (See Appendix.)

3. Because of the plateaus, mountains, and deserts in the central part

There are vast stretches of level land among these mountains, but they are plateaus, rather than low plains. One of them, the plateau of Tibet, is from two to three miles above the level of the sea, — higher than the peaks of most lofty mountains. You know that the summits of mountains are cold; so, also, are high plateaus. Thus most of the highland of Central Asia has a cool or a cold climate.

Fig. 439. — Fujiama, a perfect volcanic cone in Japan.

Much rain and snow falls on the edges of this vast highland. Note the rivers that find their sources there. The three on the north side, crossing Siberia, have already been mentioned. What are their names? What three are found on the east side, emptying into the Pacific? Name several on the south side. From this you see that most of the great rivers of Asia rise in this highland region, just as most of those of western Europe rise in the Alps.

Since the winds lose their vapor on the margin of this great highland, its interior is largely either desert or arid land. Find the Desert of Gobi.

A region so mountainous, and so cold and dry as Central Asia, is difficult to explore; and it is not strange that we know little about it even to-day.

4. Because of the character of the people

From what has been said about the western, northern, and central parts of the continent, it is evident that there can be but few inhabitants in those sections. The vast hordes of people living in Asia must, therefore, dwell in the eastern and southern parts. Most of them live in China, Japan, and India (Fig. 440).

How well do we know those parts of the continent? There it is the character of the people, rather than of the country, that has prevented their being better known. The Chinese, for instance, of whom there are such great numbers, are very different from Europeans and Americans, and, until quite recently, they would have nothing to do with

foreigners. They have not been willing to admit white people into their country even as visitors. How, then, could we find out much about them and their country?

Until about fifty years ago, the Japanese felt and acted in the same way toward us. India is better known, because it has long been under the control of the British.

In recent years the situation has greatly changed, and we are now rapidly becoming acquainted with the Asiatic people and their continent.

2. The Turkish, or Ottoman, Empire

Although Constantinople, the capital of the Turkish Empire, is in Europe, Turkey controls ten times as much land in Asia as in Europe.

Why of special interest

The part of Asia which Turkey controls is of peculiar interest to us. It is here that many of the places mentioned in the Bible are located (Fig. 444); and here Jesus was born, as well as the prophet Mohammed. It was from this center, also, that much of the ancient civilization spread along the shores of the Mediterranean.

Surface and climate

A large part of Turkey in Asia is table-land, crossed by short mountain ranges. There are also a number of extinct volcanoes, such as Mount Ararat.

There is little rainfall except along the coast of the Mediterranean and Black

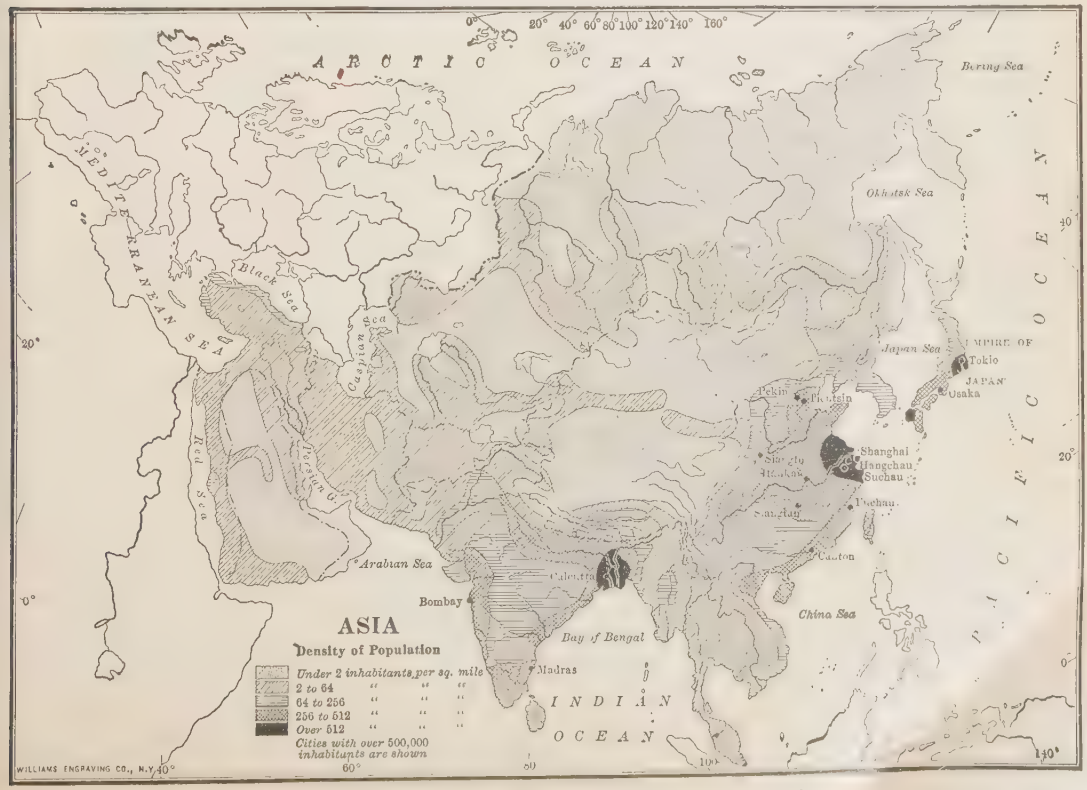


Fig. 440. — Map showing Density of Population of Asia.

Fig. 441. — Some of the wild animals of Asia.

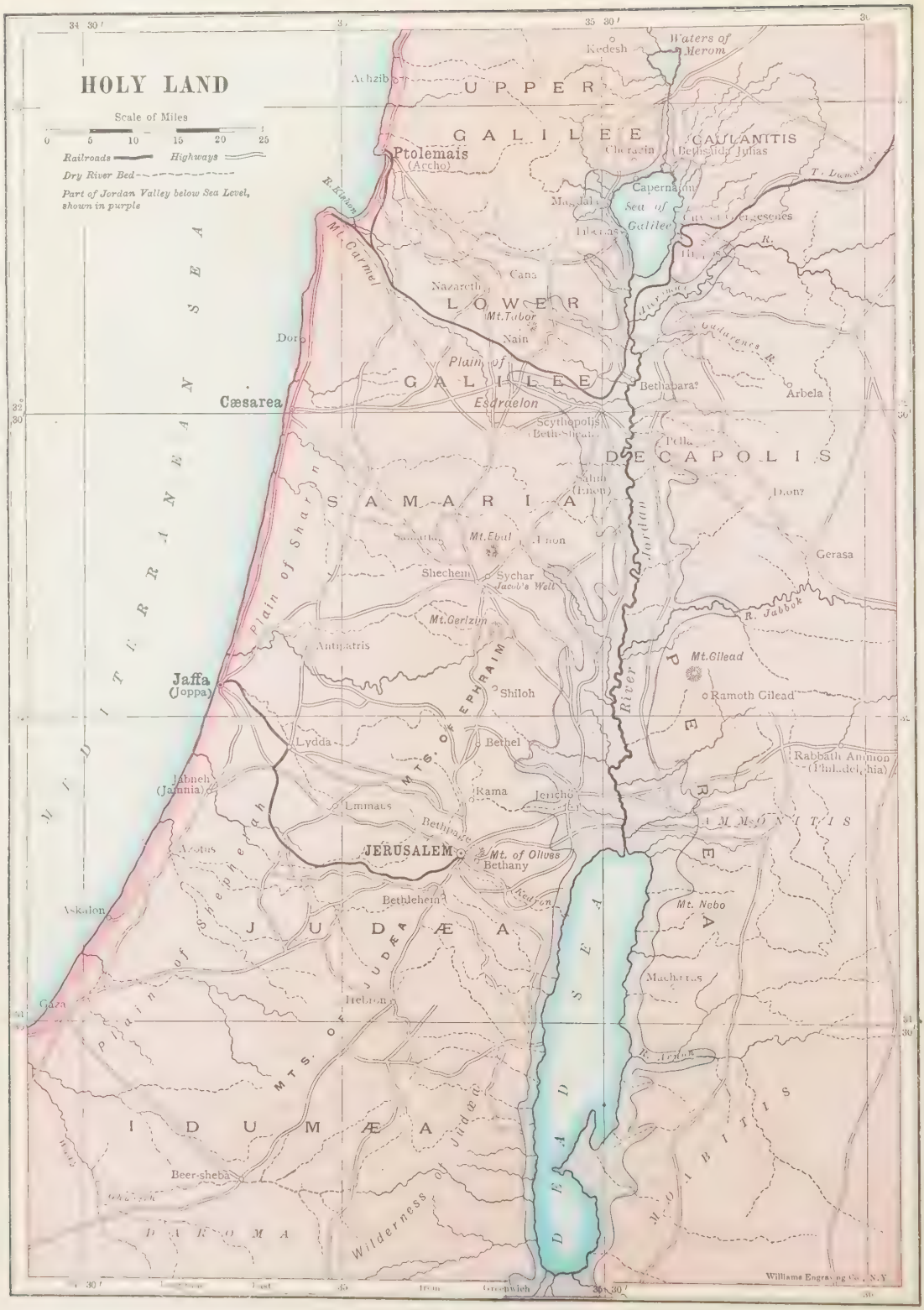

HOLY LAND
Scale of Miles
0 5 10 15 20 25
Railroads
Highways
Dry River Bed
Part of Jordan Valley below Sea Level, shown in purple
Waters of Merom
Kedesh
Achzib
UPPER
GALILEE
GAULANITIS
Ptolemais
(Accho)
Cherasin
Bethsaida Julias
Capernaum
Sea of Galilee
Magdala
Tiberias
Hippos
R. Kishon
Mt. Carmel
Cana
Nazareth
LOWER
Mt. Tabor
Nain
Dor
Plain of
GALILEE
Bethabara?
Arbela
Cæsarea
Esdraelon
Scythopolis
(Beth-Shean)
Pella
DECAPOLIS
Salim
(Enon)
Dion?
SAMARIA
Samaria
Mt. Ebal
Enon
Gerasa
Shechem
Sychar
Jacob's Well
Plain of Sharon
Mt. Gerizim
R. Jabbok
Antipatris
Mt. Gilead
Jaffa
(Joppa)
MTS. OF EPHRAIM
Shiloh
Ramoth Gilead
River Jordan
PEREA
Lydda
Bethel
Rabbath Ammon
(Philadelphia)
Jabneh
(Jamnia)
Rama
Jericho
Emmaus
AMMONITIS
Bethpage
Azotus
JERUSALEM
Mt. of Olives
Bethany
Kedron
Bethlehem
Mt. Nebo
Askalon
JUDÆA
Plain of Shepherah
MTS. OF JUDÆA
Machaerus
Gaza
Hebron
R. Arnon
IDUMÆA
Beer-sheba
Wilderness of Judæa
DEAD SEA
MOABITIS
DAROMA
MEDITERRANEAN SEA
Williams Engraving Co., N.Y.

FIG. 441.

seas. The country is, therefore, mainly arid or desert; the streams are usually short and shallow, and there are numerous salt lakes. Point out the two principal rivers (Fig. 444).

Some of the mountain slopes are covered with forest; but most of the country is open, and suited mainly to herding, though there is some agriculture. In the valleys wheat, grapes, olives, figs, oranges, and cotton are raised, usually by the aid of irrigation. Both the herding and farming are carried on in much the same way as in the Bible times. The valuable minerals are scarcely worked at all; and there is almost no manufacturing except that done by hand (Fig. 443). Some of this work, however, especially tapestry and rugs is very beautiful.

Industries, products, and chief cities

SMYRNA, the leading seaport, has a fine harbor and has been growing very rapidly now that railroads extend inland from this point. Locate it. Find TREBIZOND, an important port on the Black Sea.

FIG. 442. — A Mohammedan priest in eastern Asia.

There are two parts of Turkey in Asia that merit special study on account of their history: namely, (1) the *Holy Land*, and (2) the valley of the Euphrates and Tigris rivers, or *Mesopotamia*.

Two especially important parts of Turkey in Asia

The Holy Land has a nearly straight coast with no good harbors, and back of it is a narrow coastal plain. Beyond this are two low mountain ranges, and between them is the remarkable depression at the bottom of which is the Dead Sea. While the village of Hebron (Fig. 444), on the western mountain range, is about three thousand feet above sea level, the surface of the Dead Sea, a few miles to the east, is almost thirteen hun-

1. The Holy Land

(1) *Its surface and climate*

FIG. 443. — Native spinning wheels in Palestine, using the same methods as in the days of Christ.

FIG. 445. — Tiberias and the Sea of Galilee in the Holy Land.

dred feet below sea level. This is, in fact, the deepest depression on the lands of the earth.

The river Jordan flows along this depression coming out of a fresh-water lake, called the Sea of Galilee (Fig. 445), and emptying into the Dead Sea. But this is such a desert region that the water evaporates too fast for the Dead Sea to have an outlet. The sea is so salt that no living things can exist there, and the salt makes the water so dense that a person cannot even sink in it. The Jordan Valley and the Dead Sea lie no farther south than southern Alabama; yet, partly because the region is so low and inclosed, its climate is almost tropical.

(2) Important events that happened here

Before its possession by the Jews, this region was divided into small countries, often under the rule of their more advanced and powerful neighbors in northwestern Africa, the Egyptians. Then the Jews entered this "promised land" and created a kingdom which rose to its highest power under King Solomon. It was here that many of the events in the Old Testament took place, including the advance in religion from the worship of many gods to the belief in one all-powerful God. Persians, Egyptians, and Romans later ruled over Palestine; and it was during the control of the Romans that Jesus was born at BETHLEHEM (Fig. 446). What events in the life of Jesus can you mention that occurred at some of the places marked on the map (Fig. 444)?

(3) Former products and commerce of Palestine

At that time, as we learn from the Bible, the region was highly developed. Wheat was raised upon the uplands, and olives, figs, and grapes in the valleys, while herds of sheep were pastured on

FIG. 446. — Pilgrims entering Bethlehem on Christmas Day. It was here that Jesus was born.

FIG. 447. — A view of Jerusalem as it appears to-day.

the plateaus and mountains. Recall events from the Bible that indicate these occupations.

Palestine lay on the great caravan route which, leading from Egypt to the distant East, ran northward, as far as DAMASCUS (Fig. 434), in order to avoid the Syrian desert. Throngs of people, therefore, passed this way. JERUSALEM (Fig. 447), the capital, was a large city, situated upon a lofty elevation that made it an important stronghold.

Palestine is now visited by many Christians, and also by Mohammedan pilgrims who believe that Mohammed ascended to heaven from Jerusalem. The usual mode of travel is by mule or camel, as in olden times. A short railway now climbs the mountains from JOPPA, on the seacoast, to Jerusalem, and another has been begun following the old caravan route past NAZARETH, and the Sea of Galilee, to DAMASCUS. Trace these two lines.

(4) Present method of travel

Mesopotamia, which includes the fertile valleys of the Tigris and Euphrates rivers, has suffered the same fate as the rest of Turkey in Asia. It was formerly crossed by a network of irrigation canals, and was called in the Bible "a garden of the Lord." But it has been overrun by the Arabs and Turks, until it is now almost a waste. Babylon and Nineveh, once great cities, and the seats of a wonderful civilization, are now marked only by mounds of ruins. The site of the Tower of Babel is believed to have been at Babylon, and the ruins of the palace of Nebuchadnezzar are still to be seen there.

2. Mesopotamia

(1) Its ancient history

There is now little commerce in this land, though steamboats can go up the Tigris as far as BAGDAD. This city, situated on the caravan route to the East, was of much importance in ancient times. There is still some trade between Europe and India along this route. The building of a railroad to Bagdad will probably greatly increase its importance.

(2) Its present importance

3. ARABIA, PERSIA, AND AFGHANISTAN

The Arabian Peninsula is an arid plateau, several thousand feet in eleva-

tion. What waters border it? The climate is hot along the coast, but cooler on the plateau and among the mountains.

Arabia

There are few people in Arabia, and these are largely nomadic. Coffee is raised in the southwest, near MOCHA; the date palm flourishes in many places; and fruits and vegetables are produced in many of the valleys. Agriculture is possible in most parts only by means of irrigation. Cattle, sheep, goats, donkeys, horses, and camels are raised in large numbers.

MECCA, a city about fifty miles from the west coast, is sacred to all Mohammedans (Fig. 442). It was here that Mohammed was born, and every Mohammedan wishes to make a pilgrimage to it at least once during his lifetime. Most of these pilgrims come by sea, and every year both the city, and the roads leading to it, are crowded with them. Now, however, a railroad to Mecca is being built.

Most of the Arabian peninsula is independent of Turkey, though it has no well-organized government of its own. Turkey controls the west coast and the Persian Gulf coast as far as *Oman*, a small independent state whose capital is the seaport of MASKAT. The British have control of ADEN, which is one of their most important coaling stations.

FIG. 448. — A Persian girl in native costume.

Persia, like Arabia, is an elevated table-land, with large tracts of desert that are of little or no use to man.

Persia

The best agricultural district is near the Caspian Sea, where there is rainfall enough for crops. Elsewhere the climate is so arid that irrigation is necessary for farming. The chief farm products are tobacco, wheat, barley, cotton, and opium. Much silk also is produced, and roses are cultivated for the manufacture of the perfume, attar of roses.

Nearly two million Persians belong to nomadic tribes (Figs. 437 and 449) that roam about the desert, dwelling in tents, and herding goats, sheep, and other animals.

There are some valuable minerals, including the precious stone, turquoise. Precious pearls and pearl shells are found in the waters of the Persian Gulf.

Almost the only manufacturing is that done by hand (Fig. 450); and the Persians, like the Turks, do some very beautiful hand weaving, notably of shawls and rugs. Their carving and inlaid metal work and woodwork also are very artistic.

The government of Persia has long resembled that of Turkey, and has therefore been bad. The ruler, the *Shah*, has been an absolute monarch, controlling the lives and property of his subjects, who are mostly Mohammedans. Recently, however, there has been a popular uprising and a demand for better government. The Shah has promised a reform and has agreed to allow the people a voice in making their laws. TEHERAN is the capital and the largest city.

Afghanistan, "one of the waste places of the world," is a region of sand, bare rocks, and snow-capped mountains. Only in the valleys is the soil made to

Afghanistan

yield a harvest. Like other Asiatic countries so far studied, Afghanistan is badly governed. The ruler, the merciless *Amir*, keeps his authority by the terror he inspires among his subjects. Nestled among the lofty mountains is KABUL, the seat of government.

FIG. 449. — Persian nomads and their home.

4. RUSSIA IN ASIA

This vast country, extending from the Ural Mountains to the Pacific Ocean, is a part of the Russian Empire. The best settled section is in the south, in *Turkestan* and the dependencies of *Bokhara* and *Khiva*. Find these places on the map. Even this part is thinly inhabited, for the region is arid and desert, like the countries farther south.

Its best-settled part

The occupations, also, are similar to those of southwestern Asia. Herding is the principal industry on the arid steppes and deserts, sheep, horses, cattle, and camels being raised. In the river valleys and on the oases, corn, fruits, tobacco, cotton, hemp, and the silkworm are the principal products.

There is very little manufacturing beyond the making of rugs, shawls, and cloth, by hand. Many hand-made rugs from *Bokhara* and *Khiva* are sold in the United States.

FIG. 450. — Persian women making a rug by hand. These people are so backward that they have not learned to use modern machinery; but their hand work is very beautiful.

Its least-settled part

The northern portion, a land of frozen tundras, is the coldest region on any of the continents. The few people who live there resemble the Eskimos (Fig. 453). They keep herds of reindeer, which supply them with milk, meat, and hides, besides serving as draft animals (Fig. 452).

FIG. 451. — Russian carriages in a Siberian town.

The middle part of Siberia is a vast plain which, though little settled as yet, is the most promising section for the future. It has much good soil, and is suited to the production of grains. There is much forest here, and in the mountains valuable minerals are found, including gold, and graphite, or "black lead," from which pencils are made.

Its most promising part

One reason why this region has not been better settled is the fact that it has been difficult to reach. The rivers, which flow northward, have not been of much use, and until lately there have been no railroads. The Russian government has built a railroad all the way across Siberia, so that it is now possible to travel by rail from St. Petersburg to PORT ARTHUR on the Chinese coast. About how far is that?

There are several important cities in Asiatic Russia. The largest in the southwest is TASHKEND; and the city of BOKHARA is next in size. TIFLIS, between the Black and Caspian seas, is really in Asia, though the Russian government classes this region with its European provinces. It is about the size of Tashkend. In Siberia there are no large cities, though several along the railway, including IRKUTSK and VLADIVOSTOK, are now growing rapidly.

Leading cities

From Ratzel's "History of Mankind."

FIG. 452. — A camp in the tundra of northern Asia. The reindeer are used for drawing the sleighs and also as a source of milk and meat

Russia has long used Siberia as a prison, and thousands of prisoners have been sent there;

many of them not because they have committed crime, but because they have said or done something that the Russian rulers did not like. Some, even, have been merely *suspected* of saying or doing something. Many have been seized by officers and thrown into prison without a moment's warning; then, without trial, they have been transported to Siberia to work in the mines. Men and women of the highest character have thus been torn from their families and hurried away so secretly that not even their friends knew what had become of them.

Use of Siberia as a prison

Fig. 453. — A Yakout woman from the cold tundra region of Siberia.

Such treatment shows the meaning of a despotic form of government. It also shows us very clearly how fortunate we are in living under such a government as our own.

5. Republic of China

Some of the most important arts that man has ever learned have come from the Chinese. For instance, they made porcelain dishes long before the Europeans knew how, and on that account such dishes are still called *china-ware*, even though manufactured in the United States.

Former progress of the Chinese

They invented gunpowder, and our firecrackers for the Fourth of July formerly came from China. You have doubtless seen the Chinese letters on the outside of packages. They also discovered how to make silk and paper, and they invented the art of printing.

The Great Wall

The Chinese were a highly developed people and a powerful nation long before the time of Christ. This is shown by the *Great Wall* that they built along their northern frontier in the year 212 B.C.

This wall, which was built to keep out invaders, is twelve hundred miles long in a straight line, and more than fifteen hundred miles long with all of its windings. It leads up and down hill (Fig. 454), and even over a mountain peak. The wall is twenty-five feet wide and thirty feet high, and every few hundred feet there are strong watchtowers rising still higher. Although this wonderful structure, which required armies of men to build, is now more than two thousand years old, many parts of it are still perfect.

Fig. 454. — A view of a part of the great Chinese wall.

Their backwardness now, with reasons

This strange-looking, yellow race was once among the foremost nations of the earth; but now it is very much behind the Great Powers of Europe and the New World.

This is partly explained by the fact that the Chinese believe that whatever their ancestors did, they must do. This is called ancestor worship. Since their fathers had no railways, telegraphs, or telephones, they have wanted none themselves. Also, because of their dislike of new things, they have neither traveled much abroad, nor allowed foreigners to visit them. Indeed, they have looked down upon foreigners, or, as they call them, "foreign devils," who have so many strange customs.

A second cause for the backwardness of the Chinese has been their poor government, which was until recently an absolute monarchy, weak and corrupt, like that of Turkey.

Possible strength of China in the future

1. Area and population

In spite of these facts, it is quite possible that China will yet rank as one of the Great Powers of the earth. Her enormous population, which is larger than that of all Europe, and five times that of the United States, gives one great advantage. Her area, which is greater than that of the United States, gives her a second advantage.

Fig. 455. — A Chinese family engaged in ancestor worship.

The enormous population of China is not spread evenly throughout the whole country (Fig. 440). There are some sections where

very few people live, either because the climate is too cold or too arid, or because the country is too mountainous. Population is sparse, for instance, in Tibet, Turkestan, and Mongolia, which together make up half of the empire. There are some sections, as in the Desert of Gobi, where even grazing cannot be carried on.

On the other hand, vast hordes of Chinese live on the river flood plains and deltas of the south and east. This is, indeed, the most densely settled large area on the globe. These flood plains and deltas are very broad and fertile, especially in the lower portions of the Hoang-ho and Yangtse-kiang rivers.

While the flood plains and deltas make excellent farm land, they are in constant danger of floods, and are therefore not very safe places to live in. The Hoang-ho, for instance, may rise as much as forty feet in summer, and sometimes it overflows all the low country on either side. There have been many destructive floods, a single one of which destroyed a million lives. Because of the repeated destruction of life and property due to such floods, the Hoang-ho has been called "China's Sorrow."

A third advantage which China enjoys is her great variety of climate. Observe through what zones the Empire extends. How much farther south does it reach than our most southern state, Florida? How much farther north, than our most northern states? Naturally, then, the variety of climate is even greater than our own, and hence the agricultural products may be even more varied. As in our country, some parts are desert, some arid, and some have abundant rainfall.

2. Variety of climate

There are many kinds of soil, too. There are extensive plains, some of them broad river flood plains and deltas; some sections are plateaus; and there are also lofty mountain ranges.

3. The surface features

In so large a country, with so many differences in climate, soil, and surface features, there are certain to be many resources. Let us see what the principal ones are.

In northern and western China, the climate is arid, and there are some extensive deserts. Here the principal products are meat, wool, and hides. South and east of this there is rainfall enough for agriculture. Here the products of the temperate zone, such as wheat, can be raised. What other grains and agricultural products have you found in the northern half of the United States? All these can be raised in this part of China.

4. Resources
(1) *Agricultural products*

Fig. 456. — One of the Chinese rivers on which commerce is carried by the use of sail and row boats.

Central China, just south of this section, has a warm, temperate climate. Here cotton, rice, millet, oranges, and silk are produced. Rice is one of the chief articles of food for the Chinese, and China produces more raw silk than any other country in the world.

FIG. 457. — Chinese farm scenes. These terraces have been built by the Chinese, so that they can cultivate even the steep hill slopes.

The extreme southern part of the Empire extends into the tropical zone. Here we find tropical fruits, such as grow in Central America and the West Indies. Name several of them.

Thus China produces all the crops that the United States does, and more. Name some of their products that we do not raise.

The farming methods are very crude, but the Chinese are so skillful and industrious, that they till every bit of land possible (Fig. 457). For example, instead of leading water for irrigation only to land of gentle slope, as in the United States, they often take it to the very hilltops. It is first raised from the river by means of wheels, turned either by men or by buffaloes, and then pumped upward from one terrace to the next, until the whole hillside is watered. Such methods could not be used unless labor were very cheap. A Chinese laborer receives only about ten cents a day as wages.

There is valuable fishing along the coast. The Chinese make much use of fish as an article of food, catching them from the rivers as well as from the sea. They even train birds to catch fish for them.

(2) *Fishing*

The Chinese have never been noted as miners, and therefore little is known about the mineral wealth of the country. Still it is certain that there are vast deposits of coal of the very best quality, some of it hard coal, like that of eastern Pennsylvania. There are also extensive deposits of iron, gold, silver, and other valuable minerals.

(3) *Minerals*

The Chinese are an artistic people, and they make very beautiful chinaware and silk fabrics; but they still do most of the work by hand, as has been the custom for thousands of years.

5. Manufacturing

FIG. 458. — A Chinese lady being carried by two men — a very common way of traveling in China.

They carry on other kinds of manufacturing, also, mainly by hand. There is, for instance, much use made of the bamboo, whose wood is used in building houses (Fig. 459), as well as in making nearly all articles of furniture. The bamboo is also woven into mats, baskets, and hats; and from its pulp paper is made; the seeds also are ground up for food, while the tender roots and stalks are eaten.

There are so many industrious, intelligent people in China, and there are such vast resources, that when China once adopts modern methods of manufacturing she will doubtless take a leading place among the nations of the world. It may happen, even, that China will be able to make and sell goods more cheaply than can be done in Europe or America.

The natural means of transportation in China also are excellent. There are many good harbors, especially at the mouths of the rivers; and these rivers are open to navigation far into the interior (Fig. 456). Even now, the easiest way of getting into the interior of China is by boat, especially on the Yangtse-kiang and Hoang-ho rivers. Trace these rivers.

6. Means of transportation

The Chinese have built a number of canals (Fig. 459), and these have been used for centuries. Find the Grand Canal on the map, and tell what cities it connects. It was built twelve hundred years ago. Railways and electric cars, being new inventions, have been much disliked by the people. For that reason there are, even now, few of these in this vast Empire.

Fig. 459. — A Chinese village, with bamboo houses, on the banks of a canal.

Fig. 460. — A Chinese passenger wheelbarrow, on which people are carried long distances.

The Chinese methods of transportation have been, and are still, very crude. It has been the custom for men to take the place of horses to a large extent, carrying goods on their backs, and drawing both people and freight in vehicles of various kinds (Fig. 458).

One of the principal vehicles is the wheelbarrow (Fig. 460), which can be used even where the roads are very narrow. There are

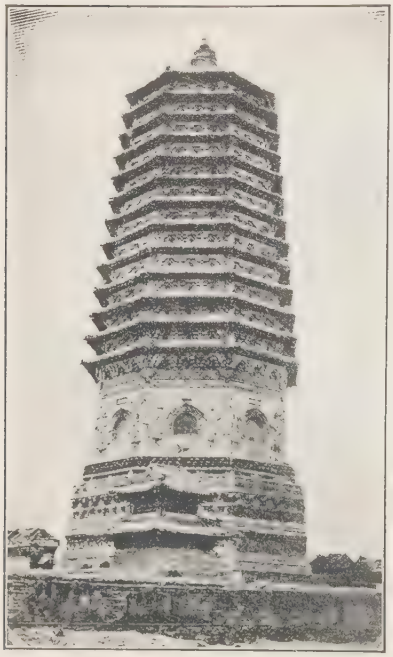


FIG. 461. — A Chinese pagoda, or temple, where the people worship.

more than two thousand passenger wheelbarrows in Shanghai alone. It is said that passengers sometimes travel from Shanghai to Peking, a distance of six hundred miles, in wheelbarrows. Labor is so cheap that it costs about twenty cents a day, or at the rate of about half a cent a mile, for each passenger, two traveling in a single wheelbarrow. This is about one fourth as expensive as the passenger rate on some of our railways. The passengers in the wheelbarrow, however, do not go as far in a whole day as we go on our trains in two hours!

7. Recent advances

Of late, the Chinese have been rapidly changing their customs. They are now sending hundreds of their able young men to Europe and to America to learn about our arts and industries. They are inviting foreigners into their country, are building railroads, and improving their laws. But most wonderful of all, they have completely changed their government, have done away with the ancient monarchy and have formed a republic. Thus the Chinese are awakening at last, and it seems likely that they will make wonderful progress in the future.

Chief cities

You have already learned that a large portion of the Chinese live along the coast and the lower courses of the rivers. There are so many people here that scores of thousands can find no room on the land, but live in houseboats on the water. Many others dig caves in the hillsides, and live in them.

1. Canton and Hongkong

In this section there are many large cities. One of the largest is CANTON, which, situated on a densely populated delta, is a port of

FIG. 462. — A caravan of camels, outside the walls of Peking.

outlet for southern China. Canton is noted especially for its silk.

HONGKONG, an island which commands the approach to Canton, belongs to the British. Many of the products of China are sent from this port to Europe and America.

2. Cities on the Yangtse-kiang River

HANKAU and WUCHANG, on the Yangtse-kiang River, are important river ports for tea. Here, as in the case of most Chinese cities, the number of inhabitants is uncertain. For example, by some estimates, Hankau has a population of more than a million; by others, only a half million.

SHANGHAI also is a large city. It is a *treaty port;* that is, one where foreigners are allowed by treaty to carry on trade. This is not permitted in all Chinese cities.

3. Peking and Tientsin

PEKING, the capital of China, has been the capital of a kingdom for three thousand years, and the capital of the Chinese Empire for over eight centuries. This city, like others in China, is surrounded by a high wall (Fig. 462) with gates that are closed at night. Many European cities in olden times were so protected. One portion of the city is reserved for the gardens and palaces of the emperor. This part is known as the "Forbidden City," because the Chinese government formerly refused to allow foreigners to enter it.

TIENTSIN, the port nearest PEKING, is an important seaport. It is situated at the northern end of the Grand Canal.

6. THE JAPANESE EMPIRE

Area and population

Japan is only a little more than one tenth as large as China, and has only a little more than one tenth as many inhabitants. It is not much larger than the British Isles in area and population.

On the map (Fig. 436) find the two largest islands, Nippon and Yezo.

Find Formosa, the most southern island of the Empire. The Kurile Islands and the southern half of Sakhalin Island also are included in the Empire. Locate these islands. Estimate the

FIG. 463. — A Japanese coolie carrying water.

greatest length of the Empire from north to south.

Japan is, as you see, an island empire like the British Isles. No part of the country is far from the sea and therefore the Japanese, like the British, have a favorable position for commerce.

The Japanese, like their neighbors, the Chinese, belong to the yellow race. Like them, also, they have a very ancient civilization. For a long time the Japanese, like the Chinese, wanted nothing to do with foreigners. In 1853, however, an American naval officer, Commodore Perry, entered the harbor of Yokohama with several war ships, and persuaded the Japanese to allow us to trade with them.

Advances since 1853

Fig. 464. — Mutsuhito, Emperor, or Mikado, of Japan.

Since that time the Japanese have made wonderful advances. They have built railways and have established lines of steamships to many parts of the world. They have introduced the telephone and the telegraph, have established many newspapers, and many schools of all grades. At the same time they have made such progress in manufacturing that they are now one of the leading manufacturing nations of the world.

Only a few years ago Japan engaged in a war with Russia to prevent that Great Power from seizing Korea. The Japanese won the victory and took control of Korea. A few years before that they had a war with China, in which they easily won.

Japan is now far in advance of all other countries in Asia. She ranks as one of the Great Powers of the world, the only one in Asia, and is sometimes called the England of the Orient.

Probably no nation has ever advanced more rapidly than has Japan during the last fifty years. Some of the reasons for this astonishing growth are as follows: Perhaps the most important of all reasons has been the eagerness of the Japanese to learn. Soon after Commodore Perry's visit, they invited foreigners to come as teachers, and sent thousands of their young men abroad, to study in the United States and in Europe.

Reasons for this wonderful advance

1. Eagerness to learn

A second reason for the progress of the Japanese is their good government. Before 1853 the real power was in the hands of the noblemen, who had large numbers of peasants to work for them and to fight in their wars. This was somewhat like the condition in Europe in the Middle Ages, which was called the *feudal system.*

2. A good government

After Commodore Perry's visit a new government was established in which

the people had a voice. There is an emperor, called the *Mikado* (Fig. 464), and a legislature with two houses, one elected by the people. The government is, therefore, a limited monarchy.

3. The natural resources of the country

The valuable resources of the country are a third reason for the advance of Japan. The climate is everywhere moist enough for agriculture, and the temperature is also favorable. In what zone does most of Japan lie? In what zone is the rest of the Empire? Although a large part of the surface is mountainous (Fig. 439), there is yet much excellent soil. The people have learned to cultivate it very skillfully, too, allowing no land to lie idle that can possibly be used for crops. About one sixth of the surface of the empire is cultivated.

The long distance through which the islands extend from north to south, makes it possible to raise many different kinds of crops. Measure to see how far it is from Yezo, on the north, to Formosa, on the south. What is the latitude of the northern and of the southern boundaries? The crops in the north are the products of the cool temperate zone; those in the south, and especially in Formosa, are such as are common to the tropical zone. Japan, like China, produces much tea, silk (Fig. 466), and rice (Fig. 465); and as among other Mongolians, rice is one of the chief articles of food. Among other farm products are wheat, vegetables, fruits, and sugar cane.

There are also valuable forest trees, including the camphor, the laurel, and the lacquer trees, which grow in the forests that clothe the mountain sides.

Another resource of great value is the fish in the waters surrounding the Empire. Fully two and a half million Japanese are engaged in fishing, and fish form one of the important foods of this island people.

This small country has important mineral resources, including gold, copper, iron, coal, and petroleum. There is also excellent water power for use in manufacturing.

4. Cheap and skillful labor

A fourth reason for the wonderful progress of Japan is that labor is very cheap there, as in China; and that the Japanese are very skillful workmen. In the United States one often sees especially beautiful

FIG. 465. — Planting rice in the flooded fields in Japan.

FIG. 466. — Japanese women gathering the cocoons spun by the silkworm.

fans, parasols, napkins, dolls, and screens that were made in Japan. Whatever the Japanese make, they try to make beautiful.

A fifth reason for the advance of the Japanese is the growth of manufacturing. They have learned methods of manufacturing from Europeans and Americans. Therefore, with their skill and industry, their cheap labor, and their abundance of raw materials, fuels, and water power, this industry has grown greatly. In silk manufacturing, especially, they have taken high rank. They are also very skillful in making pottery; and they manufacture much cotton and woolen cloth, as well as iron goods, including machinery and ships.

5. The growth of manufacturing

A final reason for the rapid advance of Japan is its favorable situation for ocean commerce. In this respect it resembles the British Isles. The coast is very long, and there are many good harbors.

6. Advantages for commerce

The islands are so narrow, and so mountainous, that there can be no large navigable rivers. But these are not greatly needed, for almost all parts of the Empire are near the sea and can therefore be reached by ocean vessels. Short railroad lines also extend into the interior and connect the seaports.

Japan suffers some serious drawbacks, however. For example, many of the islands are small, and all of them are mountainous. They are the crests of a great mountain range rising from the bottom of the sea, and some of the peaks are volcanoes (Fig. 439). The mountains are still rising, too, and as they rise, the rocks now and then break apart and change their positions, causing earthquakes. Sometimes these shocks are so powerful that houses are thrown down, causing great destruction of life and property. Japan has been visited by many terrible earthquakes (Fig. 467).

One disadvantage

The great number of earthquakes has caused the Japanese to build low houses of light materials, such as bamboo, which withstand the shaking. Even if they are thrown down, they are not so dangerous to life as those made of stone or other heavy materials.

TOKYO, a city about as large as Chicago, is the capital of Japan. Be-

sides being the home of the Mikado, and therefore having many government buildings, it is a busy manufacturing center. YOKOHAMA, at the entrance of Tokyo Bay, is the leading seaport of Japan.

Principal cities

The second city in size is OSAKA, noted for its cotton manufactures, and having a population of about a million. Other important cities are KYOTO, the former capital, and the center of the tea district, and NAGOYA, a center for porcelain manufacturing.

FIG. 467.—This building was torn in pieces by the shaking of the earth during one of the destructive Japanese earthquakes.

Japan gained control of Korea in 1905, as a result of the war with Russia. This mountainous peninsula has a temperate climate, suited to the production of such crops as grains in the north, and rice, tobacco, and cotton in the south.

Korea

In many respects the Koreans resemble the Chinese; in fact, Korea was for a long time a dependency of China. While there are great natural resources, including both coal and iron, little use has been made of them. Like the Chinese, the Koreans formerly forbade foreigners to enter their country. This is indicated by the name, "Hermit Kingdom," long applied to Korea. But since the Japanese have obtained control of Korea, there has been much progress. The capital and the largest city is SEOUL.

FIG. 468.—A Japanese laborer drawing a two-wheeled vehicle called a jinrikisha. A common way of going about the cities.

7. INDO-CHINA AND THE MALAY PENINSULA

Surface and principal divisions

This peninsula is crossed from north to south by several mountain chains, with long narrow valleys be-

tween. The flood plains and deltas of the rivers in these valleys are very fertile and are densely populated. Name the largest two of these rivers.

In addition to Burma, which is a part of the Indian Empire, there are three divisions of the peninsula: (1) *Siam*, (2) *French Indo-China*, and (3) the British Colonies of *Straits Settlements and Malay States*. They are all tropical countries.

FIG. 469. — A family of Indian Brahmans of high caste.

Most of the inhabitants of Siam live along the rivers and the irrigation canals. They are engaged chiefly in the cultivation of rice; but millet also, which is raised in the drier places, is much used for food. Among the mineral products are rubies, sapphires, gold, and tin. The forests yield valuable tropical woods.

Siam

BANGKOK is the capital and the largest city. Here are the magnificent palaces of the king, and many Buddhist temples, decorated with gold and silver, and even with jewels. Next to the king, the white elephant is held in highest reverence, and Siam is often called "the Land of the White Elephant."

French Indo-China resembles Siam in both climate and people. Its forest-covered hills yield valuable teak and iron wood, and in its valleys are extensive fields of rice and millet. Silk, cotton, tea, and spices are other products, and there are also extensive coal beds. Some coal is exported.

French Indo-China

The Straits Settlements and Malay States are the two names given to the British possessions on the southern end of the Malay Peninsula and some small islands near by. In that hot, damp country, so near the equator, such tropical products as rice, cocoanuts, rubber, and spices are obtained. There are extensive deposits of tin in this region, which supplies more than half the tin used in the world. The only city of importance is SINGAPORE.

Straits Settlements and Malay States

8. THE INDIAN EMPIRE

India, the central one of the three peninsulas on the southern side of Asia, is about half as large as the United States, but it contains more than three times as many people. There are, in fact, more people in India than in the whole of North and South America. In some parts there are as many as five hundred persons to the square mile.

Area and population

The Indian Empire includes not only the entire peninsula of India, but the desert country of *Baluchistan* on the west, and fertile *Burma* on the east. The two little countries of *Nepal* and *Bhutan*, among the Himalaya Mountains on the north, are to some extent under the protection of the Indian Empire.

Divisions of the empire

Most of the Indian peninsula is a plateau, one thousand to two thousand feet high. But on the northern border of the empire are lofty mountains, the highest being the Himalayas. In these mountains are many peaks that rise over four miles above sea level, and even the mountain passes are higher than Mont Blanc in the Alps. Between these lofty mountains and the Indian plateau is a broad lowland through which three great rivers flow,—the Ganges, the Indus, and the Brahmaputra. Trace each of these rivers.

Surface features

Fig. 470. — An Indian woman of low caste.

The coast of India is very regular, and there are, therefore, few good harbors.

Having a tropical climate, India is a very hot country; and in some parts the climate is also very damp. This is true, for instance, in the southern part, and also in the north, on the slopes of the Himalaya Mountains. Here, just west of Burma, is the region which has the heaviest rainfall in the world. Much of the empire, however, suffers for want of rain. In northwestern India and in Baluchistan, for instance, there are extensive deserts; and much of the interior of the peninsula is arid. Thus, in many parts of India irrigation is necessary.

Climate

The natives of India are classed as a branch of the white race, though most of them are much darker than Europeans. Before the British took control of India the peninsula was divided into many states ruled by native princes. Most of the states, too, have languages of their own.

The people and government

The native states still exist, and the native princes still hold their places; but they are all under the general control of the British. The present form of government was established in 1858, and India was declared a part of the British empire in 1877. Since that time the king of England has also been called the Emperor of India. An officer, called the *viceroy*, is sent to India from Eng-

FIG. 471. — The great statue of Buddha.

land to take general charge; but the natives have a share in their own government, and many of the government officers are native Hindus.

Religion

There are a number of religions in India, including the Christian, the Mohammedan and the Buddhist; but the religion of about three fourths of the people is Brahmanism. One of the teachings of their religion is the belief in *caste*, — that is, that a person born in one station in life must stay there and cannot hope to rise into a higher station. That is very different from our belief that all men are born free and equal.

The people of India have many religious superstitions. For example, the Ganges is considered a sacred river, and bathing in its waters is supposed to wash away disease. Since the waters are also used for drinking, this custom is no doubt responsible for much spread of disease. The devout Hindu makes at least one pilgrimage to the holy river as a means of gaining divine favor and forgiveness.

Why these possessions are valuable

India, together with the peninsula and islands east of it, is the part of the world that Columbus was seeking when he discovered America. He undertook his voyage in order to find a short and easy route for bringing to Europe the silks, dyewoods, spices, perfumes, ivory, and precious stones that had long been reaching Europe from the Indies. These same valuable products are still brought from this region; but other products, as well, now come from here.

There are extensive forests on the mountain slopes, from which much lumber is obtained. One valuable tree is

FIG. 472. — Natives preparing rattan in the tropical part of southern India

the teak, whose strong, durable wood is useful in building ships. In the hotter portions are plants valuable for medicines; also spices, such as pepper and cinnamon. The bamboo is used in hundreds of ways in making implements and in building houses; and the palms supply juices for drink, cocoanuts (Fig. 477) for food and for oil, and fiber for ropes and mats.

1. Because of valuable forest products

Eastern and southern India, where the winds blow from the ocean, have abundant rain. Because of the dampness and the tropical heat, there are extensive forests here, forming a dense tangle, or *jungle*. In this jungle the tiger lives; also the elephant, and other large and fierce animals (Fig. 441). There are great numbers of poisonous serpents, too, and thousands of people die every year from their bites. The English government has done much to make life safer and more agreeable in this section.

FIG. 473. — The tiger, one the wild animals of southern Asia.

From the very earliest times the people of India have been engaged in farming, and at present fully three fifths of them follow that occupation. Millet and rice are the staple foods of the natives; but after the vast number of inhabitants are fed, there is little left for export.

2. Because of agricultural products

Wheat, on the other hand, is raised for export, and India is an important granary for Great Britain. Much cotton also is produced, and a part of this likewise goes to Great Britain. Other agricultural products are sugar cane, tobacco, opium, indigo, of value as a dye, and jute which supplies a coarse, strong fiber. Much tea is raised on the hills of the very rainy region at the base of the Himalayas, south of Bhutan (Fig. 474).

Tea requires a hot climate, plenty of rain, and slope enough to prevent the water from standing around the roots of the plant. The tea plant, which is from two to four feet high, has bright green leaves similar to those of a rosebush. The leaves are picked several times a year, in many cases by boys and girls. After being picked, the leaves are dried in order to remove all moisture before packing.

India is not a great mining country, yet there are some valuable mineral deposits. Among these are salt, petroleum, iron, and coal. The latter is of special value because of its usefulness in manufacturing. Naturally coal is not much needed as a fuel in the homes. Why?

3. Because of mineral products

The native inhabitants of India, like the Chinese, have long been highly civilized and have long been noted for their beautiful hand work, in wood, metal, and cloth. They have many fine buildings that are centuries old. Even before the time of the Roman Empire, and of the Republic of Athens, the people of India were highly civilized. But, like the Chinese, for a long time they did not cultivate the arts and sciences as Europe has done.

Benefits of English rule

FIG. 474. — Natives picking tea in a tea plantation in India.

In many ways, therefore, it has been to their advantage to come under the control of the British.

For instance, the British have caused many excellent roads and railways to be built in India. They have also established a number of manufacturing industries, especially cotton. Another important work has been the improvement of the system of irrigation; for much of western and central India is so arid that irrigation is necessary. Before the British took possession, famines and plagues were common. But the people are better fed now, and with the building of roads and railways, food can be carried to places where the crops are an entire failure.

Reasons why the British can control India

In spite of these benefits, one wonders how so large a country, with so vast a population, can be kept under control by the English. India is about twenty times as large as Great Britain, and has about eight times as many inhabitants.

Many of the people of India are, in truth, dissatisfied with the English rule, and wish for independence; but they have not been able to obtain it, for India is very weak. The main cause for its

weakness is the *caste* system, already mentioned. Men belonging to one caste will have almost nothing to do with those of a lower caste; they will not even eat at the same table with them. There are also different races, with varying customs, among the Indian people. These differences among them have made it impossible for the natives to expel the English, as they certainly could if they were united.

FIG. 475. — Native buffalo used for drawing wagons in India.

So many Hindus are engaged in farming that only about five per cent of the population dwell in large towns. Yet, there are eighty-three cities, each with a population of more than fifty thousand, while one, Calcutta, has more than a million inhabitants, and two others, Bombay and Madras, more than a half million each.

Large cities
1. Their number

CALCUTTA, a seaport on the Ganges delta, is the natural outlet of the fertile Ganges Valley. Since the city is situated near coal fields, there is some manufacturing; but Calcutta is chiefly important as a commercial center and as the residence of the "viceroy," or English governor.

2. Cities on the Ganges River

Farther up the Ganges are two smaller cities, LUCKNOW and BENARES. The latter, the "holy city of the Hindus," is on that part of the Ganges which is thought to be most holy. At this point temples (Fig. 476) line the banks of the river for miles, and a steady stream of pilgrims pours into and out of the city.

The Indus has no such large cities as those on the Ganges, partly because the country is desert, and partly because the river is too shallow for navigation.

FIG. 476 — Temples on the banks of the Ganges at Benares

BOMBAY, next in size to Calcutta, and the nearest port to England, is a great business center. It is, moreover, the only Indian city with a good natural harbor. MADRAS, the third largest city, is situated at a point where there is only an open coast protected by a breakwater.

3. Bombay and Madras

RANGOON, the seaport of Burma, is important for its ex-

4. Rangoon and Mandalay

port of rice; but MANDALAY, farther up the Irawadi River, is the largest city.

Ceylon

Ceylon, with its fertile soil, abundant rainfall, and warm climate, is like a beautiful tropical garden. It was believed by the Arabs to be the Garden of Eden. Among the products are cocoanuts, rice, fruit, coffee, and tea. The island is the third most important tea-producing section in the world. Other products are sapphires, rubies, pearls, and mother of pearl.

FIG. 477. — An elephant drawing a load of cocoanuts in Ceylon.

General facts about Asia

1. Questions

1. Give some idea of the area and population of Asia. 2. Why might we expect that Asia would be well known? 3. What kind of land is found in the southwest? How has this kept us from knowing more about the continent? 4. What conditions in the north have made it hard to find out much about Asia? 5. Why has the central part become little known to us? 6. How has the character of the people prevented us from knowing more about them?

2. Suggestions

1. Have you ever seen any Asiatic people? From what countries did they come? 2. Examine pictures of buildings in Asia (in this book, or elsewhere) and note how they differ from our own. 3. Write a paper telling in what respects an Asiatic city differs from one of our own. 4. By what water routes could you go from New York to Tientsin? Would it be nearer to go by rail as far as San Francisco or Seattle? 5. By what three all-water routes could you go from New York to Bombay? Which is the shortest? 6. One can go by rail from Lisbon in Portugal to Port Arthur on the Pacific. How far is that?

The Turkish, or Ottoman Empire

1. Questions

1. Why is this empire of special interest to us? 2. Describe its surface and climate. 3. Give some facts about its industries, products, and chief cities. 4. Tell about the surface and climate of the Holy Land. 5. What important events happened there? 6. What do you know about the former products and commerce of Palestine? 7. What are the present methods of travel? 8. State some facts about the ancient history of Mesopotamia. 9. What importance has it at present?

2. Suggestions

1. What stories in the Bible have you read, that tell about places mentioned in this geography? 2. Point out on the map (Fig. 444) some of the places often mentioned in the New Testament, and describe some of the events that occurred there. 3. What is meant by the date 1909? 4. What is the meaning of B.C. and A.D. after a date (for example, 800 B.C. or 1900 A.D.)? 5. Find out some facts about the Crusades. 6. Make a sand or clay map of the Holy Land.

Arabia, Persia, and Afghanistan

1. Questions

1. Describe the surface features and climate of Arabia. 2. How is Mecca of importance? 3. Tell about the population and products of Arabia. 4. Its government. 5. Describe the surface features and climate of Persia. 6. Name its agricultural products. 7. Tell about its mining and manufacturing. 8. Its government

and chief city. 9. State facts about Afghanistan.

2. Suggestions

1. Find out how pearls are obtained. 2. What is mother of pearl? 3. Find out more about the life and teaching of Mohammed. 4. Examine a Turkish or Persian rug.

Siberia

1. Questions

1. State some facts about the best-settled part of Siberia. 2. About its least-settled part. 3. About its most promising part. 4. Name and locate the chief cities. 5. Tell about the use of Siberia as a prison.

2. Suggestions

1. Of what advantage will the Siberian railway be to Russia? 2. How does that railway compare in length with those crossing the United States? 3. What object do you see in having the eastern terminus, Port Arthur, so far south?

Republic of China

1. Questions

1. Tell about the former progress of the Chinese. 2. Describe the Great Wall. 3. Why are the Chinese so backward? 4. What about the area and population of China? 5. Where do most of the people live? 6. Tell about the destructive floods. 7. What kinds of climate are there? 8. Describe the surface features. 9. What are the chief agricultural products? 10. How is farming carried on? 11. Tell about lumber and fish. 12. What about mining? 13. What is the condition of manufacturing? 14. Tell what you can about means of transportation. 15. Describe the recent advances of the Chinese. 16. Name and locate the principal cities.

2. Suggestions

1. How can you distinguish a Chinaman from other men? 2. How might railways in China help greatly to prevent the awful famines that they sometimes have there? 3. Why should the Great Wall have less value now than formerly? 4. What reasons can you see for or against the free admission of Chinese to the United States? 5. Find out about some of the events connected with the Boxer trouble in China in 1900.

Japan

1. Questions

1. Compare Japan with China in area and population. 2. Name and locate the parts of the empire. 3. Compare Japan with the British Isles. 4. What advances have been made by Japan since 1853? 5. Give several reasons for such advances. 6. Describe the government of Japan. 7. Name the chief agricultural products. 8. Name some of the forest products. 9. What can you tell about the fisheries? 10. Name the principal minerals. 11. What about manufacturing? 12. Advantages for commerce? 13. Tell about the volcanoes and earthquakes. 14. Name and locate the principal cities.

2. Suggestions

1. Make a collection of Japanese articles, such as paper napkins, fans, etc. 2. Examine them to see in what respects they are artistic or beautiful. 3. Collect pictures of Japanese houses and people. 4. Find out something about the war between Russia and Japan.

Indo-China and the Malay Peninsula

1. Questions

1. Describe the surface features of this region. 2. Name the principal divisions. 3. State the principal facts about Siam. 4. About French-Indo China. 5. The Straits Settlements and Malay States.

2. Suggestions

1. About how near is Singapore to the equator? 2. Bound Siam. 3. Through what waters would one pass in going from Bangkok to Constantinople? 4. From Bangkok to Tientsin?

The Indian Empire

1. Questions

1. State some facts about the area and population of this region. 2. Name the chief divisions of the Indian Empire. 3. Describe the surface features. 4. The climate. 5. What can you say about the people and government? 6. Mention some ways in which this region is valuable to the British. 7. What are the chief forest products? 8. The agricultural products? 9. The mineral products? 10. Mention some benefits that the native inhabitants have received from British rule. 11. Give a special reason why the British are able to control India. 12. Name and locate the principal rivers and cities. 13. What can you tell about Ceylon?

2. Suggestions

1. Find out about foreign missions to India, or to other parts of Asia. 2. How far was Columbus from India when he discovered America? 3. What route should he have taken if he had continued his voyage to India? 4. On a globe find which is the shortest water route from Bombay to London. 5. Read Kipling's "Jungle Book."

General Review

1. Name the principal countries of Asia, and locate each. 2. What routes might you take in going to Peking? 3. What great cities of Europe and North America are in nearly the same latitude as Peking? 4. Name the principal rivers in Asia, and describe their courses. 5. Name and locate the chief cities of Asia. 6. Draw an outline map of Asia, putting in the boundaries of the principal countries. 7. Put in, also, the principal mountains, rivers, and cities. 8. Make a sand map of the continent, showing its shape and its main slopes.

Comparisons with North America

1. How do North America and Asia differ in form? In regularity of coast line? In direction of mountain ranges? In extent of the deserts? 2. Does the Canadian Pacific Railway lie to the north or the south of the Siberian railway? Which is the longer? 3. Is San Francisco north or south of Peking? 4. Name the three peninsulas of southern Asia; of southern Europe. Which of the six is nearest the latitude of Florida? 5. Name the large rivers of Asia and of Canada that flow into the Arctic Ocean. On a globe estimate the shortest distance between the mouths of the Mackenzie and Lena rivers. 6. How do the great rivers of China compare in length with the Mississippi? With the Volga? 7. How do the interior lakes and seas of Asia compare in value for commerce with our Great Lakes? Why? 8. With what salt lake in North America may the Aral Sea be compared? 9. In what portions of North America and Asia is rice cultivated? 10. Answer the same question for cotton. 11. What important crops in Asia are not extensively raised in the United States? 12. What is the chief kind of government in each of the two continents?

SECTION II. AFRICA

Map study

1. What continent does Africa most resemble in shape? 2. In what parts are the chief mountain ranges (Fig. 479)? 3. Name and trace the largest three rivers. 4. About how much of Africa lies in the torrid zone? Is this an advantage or a disadvantage? Why? 5. How does its coast line compare with that of Europe in regularity? 6. What influence must that have upon the harbors? 7. What large island lies east of southern Africa? 8. What three groups of small islands lie west of northern Africa? 9. Find the desert country, both north and south of the equator.

1. General Facts about Africa

Surface features

Africa has the shape of a triangle, broad in the north, resembling both North America and South America in this respect. It has also a very regular coast, with few capes, peninsulas, bays, and harbors. Name the cape that extends farthest north; farthest south; farthest east; farthest west. What waters border the continent on the north; on the east; on the west?

The continent is mainly a plateau, but there is a mountain rim around part of it. The loftiest mountains are in the central part of the eastern side. Locate three mountain peaks in this section (Fig. 480). One of these, Mt. Ruwenzori, is the highest peak on the continent. Locate also the Atlas Mountains; some of the peaks in this range are 14,000 feet high.

Climate

A large part of Africa is a desert. The most extensive desert is in the north, stretching from the Atlantic Ocean to the Red Sea, and northward to the shores of the Mediterranean. What is the name of this vast desert region? What names applied to parts of it do you find on the map (Fig. 480)? The dry country extends

AFRICA
Cities with over 300,000 — Cairo
Cities with 100,000 to 200,000 — Tunis
Cities with 25,000 to 100,000 — Tripoli
Smaller Places — Suez
Capitals with less than 25,000 — LOME
Capitals
Other places
British Territory
French "
German "
WILLIAMS ENGRAVING CO., N.Y.
ATLANTIC OCEAN
INDIAN OCEAN
ARABIAN SEA
RED SEA
Cairo
Alexandria
Tunis
Tripoli
Fez
Algiers
Tangier
Gardaia
Timbuktu
Khartum
Kano
Yakoba
Freetown
Monrovia
Dakar
St. Louis
Cape Verde Islands
Bombay
Mogadishu
Mombasa
Zanzibar
Dar-es-Salaam
Tamatave
Tananarivo
Cape Town
Cape of Good Hope
Johannesburg
Durban
Port Elizabeth
Port Nolloth
Angra Pequena
Mossamedes
Benguela
Loanda
Lourenço Marquez
Beira
Quilimane
Zomba
Kilwa
Lamu
Aden
Massawa
Suez
Port Said
Jaffa
Beirut
Bagdad
Mecca
Medina
Jerusalem
Tarso Mts.
Tibesti
Borku
Ennedi
Wadai
Darfur
Kordofan
Abyssinia
Uganda
Lake Chad
Lake Victoria
Lake Tanganyika
Lake Nyassa
Lake Rudolf
Mt. Kilimanjaro
Mt. Kenia
Congo
Niger
Nile
Zambezi
Orange R.
Cape Frio
Cape Guardafui
Cape Verde
Cape Blanco
Cape Palmas
Cape Corrientes
Cape Ste. Marie
Cape Agulhas
Equator
Tropic of Cancer
Tropic of Capricorn
Sierra Leone
Liberia
Ivory Coast
Gold Coast
Senegal
Nigeria
Cameroons
Congo Free State
Belgian Congo
German East Africa
British East Africa
Italian Somaliland
Abyssinia
Madagascar
Mozambique
Angola
Cape Colony
Natal
Transvaal
Orange Free State
Bechuanaland
Namaland
Kimberley
Bloemfontein
Pretoria
Zululand
Comoro Is.
Seychelles Is.
Amirante Is.
Aldabra Is.
Cosmoledo Is.
Ascension I.
St. Thomas I.
Annobon I.
Madeira Is.
Canary Is.
Cape Verde Islands

FIG. 478.

PHYSICAL MAP OF
AFRICA
Scale of Miles
0 200 400 600 800 1000 1200 1400 1600
From 6500 to 13,000 ft.
Below 13,000 ft.
AZORES IS.
Strait of Gibraltar
MADEIRA IS.
CANARY IS.
ATLAS MTS.
Oases of Fezzan
LIBYAN DESERT
SAHARA
Cape Blanco
CAPE VERDE IS.
Cape Verde
BISSAGOS IS.
C.Palmas
EQUATOR
Kamerun Mts.
FERNANDO PO I.
GULF OF GUINEA
PRINCE'S I.
ST.THOMAS I.
ANNOBON I.
Cape Lopez
ASCENSION I.
ST.HELENA I.
ABYSSINIAN PLATEAU
GULF OF ADEN
SOKOTRA I
Cape Guardaful
ARABIAN SEA
Mt.Kenia
Mt.Kilimanjaro
PEMBA I.
ZANZIBAR I.
SEYCHELLES IS.
AMIRANTE IS.
FARQUHAR IS.
Cape Amber
STE.MARIE I.
MAURITIUS I.
REUNION I.
TROPIC OF CAPRICORN
MOZAMBIQUE CHANNEL
MADAGASCAR
Kalahari Desert
C.Corrientes
Cape Ste.Marie
Delagoa Bay
DRAKENSBERG
Cape of Good Hope
Cape Agulhas
INDIAN OCEAN
WILLIAMS ENGRAVING CO., N.Y.

FIG. 480.

Fig. 479. — Relief map of Africa.

even south of Lake Chad, as you may infer from the fact that this lake has no outlet. What other lakes that you have studied does it resemble in this respect? There is a desert also, though much smaller, south of the equator.

Between these two deserts is a broad tract of tropical country in which there are heavy rainfall and extensive forests. The large number of rivers that have their sources here show that there is abundant rainfall. Parts of this tropical country are very unhealthful. This is especially true along the lower lands near the coast; but on the plateaus the climate is not so hot. On

FIG. 481. — Nomads encamped in the desert of Algeria, south of Biskra.

the northern and on the southern side of the rainy belt, and between it and the deserts, the country has two seasons, one dry, the other rainy. Here the forest disappears and there is grass land, called the *savannas*.

The people

Africa is the home of the negro, and far the largest part of the continent is still occupied by the black race. Some of the negroes are fierce and warlike; others are peaceful. The savages live by hunting, or upon the fruits of the forest; but the negroes living upon the savannas carry on herding and simple forms of agriculture.

Arabs, who belong to the white race, have lived in northern Africa since very early times. Some of them are herders living the life of the nomad (Fig. 481); others, on the oases, and among the mountains, carry on agriculture. There are now many Europeans living in Africa, especially in the southern part.

Africa has been called the *dark continent*. Probably one reason for this is the fact that it is the home of the black man. Another reason is that until recently we have known so little about it. It is one of the oldest continents that history tells us about, and it lies so near Europe that the two almost join at the Strait of Gibraltar; yet it is the least known of all the continents.

Why called the dark continent

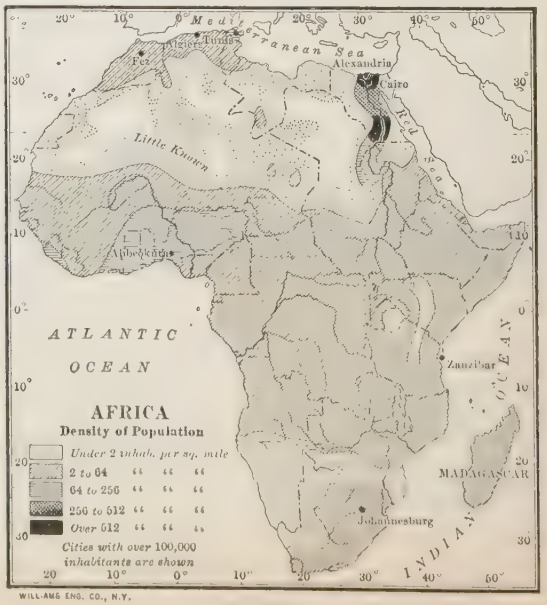


FIG. 482

There are several reasons why so little is known about Africa. In the first place, the northern part of the continent is a vast desert, fully a thousand miles wide from north to south.

Why Africa is so little known

This vast region, most of which is called the Sahara Desert, is very difficult to cross. It has no roads or railways, and the only way to travel over it is on camels (Fig. 492). There are so few oases that the watering places are usually many miles apart, so that both camels and men may perish from thirst. Frightful sand storms sometimes arise, continuing for hours and even days; and during these the sand is drifted about by the winds, filling the air and sometimes even burying the caravans. If these perils are escaped, there is still the danger of attack from the fierce nomads who live in the desert, and who may rob the caravans, often showing no mercy to travelers.

1. The great desert in the northern part

It is not strange, therefore, that Europeans have failed to become well acquainted with Africa by entering it from the north.

One would suppose that the large rivers would afford means for reaching the interior. Trace the Nile, Niger, Congo, and Zambezi, and notice how far they extend into the continent. If these could be navigated far up toward their sources, as our Hudson and Mississippi rivers can be, they would make excellent highways to the interior; but this cannot be done, for all of them have rapids and falls in their lower courses.

2. The rapids and falls in the rivers

The reason for these falls is that the interior of Africa, like that of both Mexico (p. 163) and Spain (p. 298), is mainly a plateau, whose elevation is from a quarter to a half mile above the level of the sea. In descending from this

FIG. 483. Natives of Algeria drawing water from a well on the edge of an oasis in the Sahara desert.

plateau, the rivers tumble in cataracts and falls.

One of the largest cataracts is Victoria Falls (Fig. 497), in the lower Zambezi River. The Nile also has several rapids; and there is a great cataract in the Congo. Hence the rivers have been of little assistance in the exploration of the continent.

A third reason why we know so little about Africa is its unhealthful climate.

3. The unhealthful climate

Notice where the Tropics of Cancer and Capricorn cross the continent. From this you see that most of Africa is in the tropical zone. Indeed, the equator crosses it not far from the center, and only the northern and the southern parts are in the temperate zones.

In this tropical region, the low coast lands have too hot and damp a climate for white men; and malaria, as well as other diseases that thrive in a hot, damp climate are common. Generally, therefore, Europeans can live with comfort only upon the high land of the interior. This fact has helped to keep foreigners out of Africa; for it is dangerous even to cross the narrow strip of low coast land.

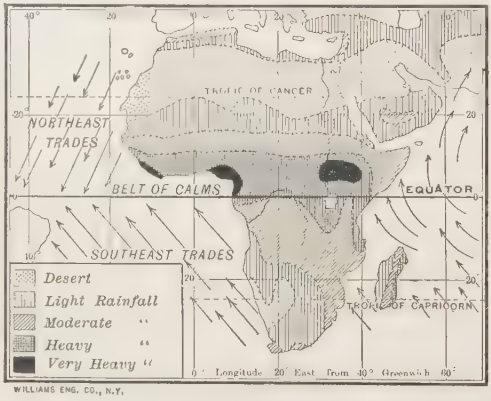


FIG. 484. — To illustrate the desert regions in the trade wind and horse latitude belts of Africa. Also to show the heavy rainfall in the belt of calms. Find the similar belts on Figures 407 and 430.

A part of Central Africa, where the rainfall is very heavy, is covered by a dense forest like that in the Amazon Valley (p. 218). This forest extends north and south for a full thousand miles, and is very difficult to travel through.

4. The forest jungle, the wild animals, and the savages

Besides this, there are many wild animals in the forest and on the open plains to the north and south of it. Among these are the lion, the elephant, the rhinoceros, the hippopotamus, and the giraffe as well as many serpents (Fig. 485). Some of these animals, as the lion, are fierce and dangerous.

Another difficulty comes from the great numbers of savage black men, many of whom are dangerous to meet. For centuries the negroes have been seized and carried away as slaves to various parts of the world. Even to-day, the Arabs seize many of them for that purpose. Such treatment has not helped to make them friendly to white men.

Why the southern part is best known

Strange as it may seem, the best-known part of Africa is the very southern tip, the part farthest from Europe. You will notice that this region lies in the temperate zone, which is one reason why Europeans have gone there. Another reason is that, in former days, ships going from Europe to India had to sail around the Cape of Good Hope. In this way men learned about that section; and long before other parts of the continent were occupied by Europeans, the Dutch had colonies in South Africa. This is now the best developed part of the continent.

Parts of Africa recently seized by Europeans

Only during the last half century has there been much exploration and settlement in other parts of Africa. In that time, however, some of the countries of Europe have been very active, and have laid

FIG. 485. — Some of the wild animals of Africa.

claim to a large part of the continent just as they laid claim to North America several centuries ago.

You can see by the map that Africa is divided into many more countries than our continent has been. What parts are owned by Great Britain (Fig. 344)? By Germany (Fig. 355)? By France? What other countries have colonies there (Fig. 478)? Make a sketch of Africa, showing the sections owned by the three Great Powers of Europe just mentioned.

Improvements made by Europeans

Now that so much of Africa is under the control of Europeans, people are going there to explore and settle, just as people have come to our own country. Thus the continent is rapidly becoming known.

In the past, in most parts of Africa, there have been very few wagon roads. Goods had to be carried either on the rivers or along paths or trails. The natives themselves usually carried these goods on their backs. Now, however, roads, railways, and telegraph lines are being built.

You will see three large lakes on the eastern side, south of the equator. What are their names? Each of these is important for navigation, for upon them steamboats can go long distances. The rivers also are much used for navigation. Above and below the waterfalls of the Congo, the Nile, and other rivers, boats can run long distances. With the aid of railroads built around the falls and rapids, these rivers are now becoming of great value for transportation.

The boldest plan of all is to build a railway from the Cape of Good Hope to Cairo in Egypt to be called the Cape-to-Cairo route. Doubtless, in time, one will be able to travel by rail all the way from Cape Town to the Mediterranean Sea.

2. Northern Africa

Character of the people

The northern part of Africa has long been occupied by the white race. Indeed, in early days, when the Greeks and Romans were flourishing, there were large and important cities along the coast of northern Africa.

Later, Arabs from Asia spread westward over that section, and their descendants still occupy the region. Like the Turks (p. 310), they are Mohammedans, and they still make pilgrimages to the holy city, Mecca, in Arabia. Their manners and customs are very different from those of Europeans. Indeed, they still live much as the people of western Asia did in the first century. They know little about the rest of the world, and carry on hardly any trade with other people. Their manufacturing is done by hand, and the chief products of the country are those needed for the simplest food, clothing, and shelter.

Egypt, the oldest country

1. Its ancient history

The best-known country in this section is *Egypt*, which is crossed by the Nile River. This is the country over which the Pharaohs, the kings of Egypt, used to rule. Ruins of their buildings, and their immense pyramids (Figs. 486,487), built thousands of years ago, may still be seen. Here, the Bible tells us, Moses once lived; and Joseph, also. What stories do you remember about them?

2. How the Nile River supports the inhabitants

Egypt is a desert country, like Arabia to the east and the Sahara to the west. Yet Joseph's brothers, you may remember, went down into that country from Palestine, to get food. It is still a great agricultural region.

The fact that Egypt is so productive is due to the Nile River. This great river rises far to the south in the tropical part of Central Africa; and each year, in the rainy season, the floods are so great that the Nile overflows its banks. The water, carrying a large quantity of sediment, has built a fertile flood plain on either side of the river, and a broad delta at its mouth (Fig. 490). The annual floods spread over these broad plains. Each overflow leaves a thin layer of rich mud, and at the same time provides the water necessary for crops. Thus each year the river both waters and fertilizes a vast tract of land. In this way, for thousands of years, millions of people have been supported in the midst of the desert.

FIG. 486. — The Sphinx in the Egyptian desert.

3. The agricultural products

Egypt lies just north of the Tropic of Cancer, and therefore it has a warm temperate climate. It is so warm there that crops like those of our Southern States can be produced. Among the principal products are grain, cotton, and sugar cane.

The Nile valley is the seat of a great grain industry, producing wheat, corn, millet, and barley. Much rice and sugar cane also are raised, and much cotton, which is of especial value because of its long fiber. There are many vineyards, and orange, lemon, and fig groves; and both along the Nile and on the oases of the desert there are groves of date palms. Grazing is important in the Nile Valley and on the neighboring plateau. The animals raised include the buffalo and the camel, in addition to sheep, goats, cattle, horses, and donkeys.

4. The Suez Canal

The eastern part of Egypt includes the Isthmus of Suez, which connects Africa with Asia. Because of this narrow neck of land, ships sailing from Europe to Asia were long compelled to go all the way around Africa. In 1869 a canal eighty-seven miles long, and wide and deep enough for large ocean ships, was opened across the Isthmus. On a globe, estimate how many miles are saved by the Suez Canal (Fig. 488) in making

FIG. 487 — One of the pyramids.

a journey from London to Calcutta. Name the cities at the two ends of the canal.

Fig. 488.—Ships passing through the Suez Canal.

5. Government

The government of Egypt is peculiar. There is a ruler called the *Khedive*, the country being a monarchy. But Turkey claims control of Egypt, and the Khedive is obliged to pay an annual tribute, in money, to Turkey. In addition, the English have a share in the government, for they have control of the finances of the nation. Furthermore, the British have taken possession of a large area of country south of Egypt. What are the names of these English possessions? The Nile flows through much of this territory, and the best entrance to it is up the Nile Valley. This is an added reason why the British should wish to keep control of Egypt, at the mouth of the Nile.

As a result of British direction, there has recently been much progress in Egypt and the Sudan. Extensive irrigation works have been undertaken, by which the area for raising cotton and sugar cane has been greatly increased. By means of reservoirs and canals it is further planned to reclaim thousands of square miles of the desert. Several railway lines also have been built (Fig. 490), including a part of the proposed line from Cairo to Cape Town. Outside of the Nile Valley, however, travel still depends largely upon the use of camels (Fig. 487).

6. Leading cities

At the head of the delta, just above the point where the Nile branches (Fig. 490), is Cairo, the capital and the largest city of Egypt and, in fact, of all Africa. This interesting place is visited each year by a stream of tourists, some attracted by its pleasant winter climate, others by the strange life of the country, or by the remarkable ruins of its ancient civilization (Figs. 486, 487).

Cairo itself contains the palace of the Khedive, several interesting mosques, and a museum in which there are many Egyptian relics and works of art. The natives also attract attention, for in the streets may be seen many people, with different languages and peculiar customs (Fig. 489). The differences among the people are indicated by the following fact: There are three Sabbaths each week: Friday, the Sabbath of the Mohammedans; Saturday, observed by the Jews; and Sunday, by the Christians.

Fig. 489.—An Arab woman in the streets of Cairo

Alexandria, connected with Cairo by rail, is the seaport of Egypt and the

second city in size. More than half the trade is with Great Britain.

Far up the Nile, in Sudan, is KHARTUM, now reached by the railway.

West of Egypt are four countries, often called the *Barbary States*. What are their names? *Morocco*, the westernmost, is an independent country, ruled by an absolute monarch called the Sultan. *Tripoli*, the easternmost, belongs to Turkey; but the two countries between, *Algeria* and *Tunis*, are French colonies. In Tunis, however, there is still a native monarch, called the *Bey*.

The Barbary States

The Atlas Mountains skirt the Mediterranean coast from the Atlantic Ocean to Tunis, where they project into the Mediterranean, forming the most northerly point in Africa. These mountains cause vapor to be condensed when winds blow from the ocean or from the Mediterranean. For this reason many of the valleys among the mountains are well watered.

1. Their surface and climate

FIG. 490. — The lower Nile. The shaded area between the two deserts is farming land, which is reached by water from the river. The numerous crossed lines are railways. Find the Pyramids. Why is the location at the head of a fertile delta, and at the outlet of a narrow river valley bounded by desert, a favorable one for a large city?

Each of the Barbary States extends far southward into the Sahara Desert,

FIG. 491. — Algerian natives plowing with a camel on an oasis in the desert

and throughout most of this great area few people are able to live. Only on the oases, of which there are about four hundred, is there water for irrigation and for drinking (Fig. 483).

Forests cover some of the mountain slopes, and one of the valuable trees is the cork oak. Large numbers of camels, sheep, goats, and cattle are raised among the mountains and upon the plateaus.

2. Their products

Agriculture is carried on here and there, often by means of irrigation, with water supplied by the mountain snows and rains, as in southern California. Among the crops are dates, grains, figs, grapes, and olives. Wine from the grapes of Algeria is shipped in large quantities to France; and much olive oil, and the best dates in the world, come from Tunis.

The mountains contain many valuable mineral products, including precious metals in Morocco and Algeria, and marble and alabaster in the latter country. Little use is made of these minerals, however.

3. Caravan trade

A part of the trade of the Barbary States is in products from tropical central Africa, including ostrich feathers, skins, and ivory. These are brought by caravans across the Sahara Desert (Fig. 492).

One of the important routes is from TAFILET in Morocco, southward to TIMBUKTU, and the trip requires fully three months. Estimate the distance. There may be from a thousand to fifteen hundred camels in a single caravan, and a full year may be needed to get it ready. Each camel is carefully selected by the chief of the caravan, and extra camels are taken to replace those that give out on the journey. Usually about a third of the animals perish in the round trip; and before the return journey is begun, it is necessary to give those that live a rest of several weeks.

FIG. 492. — A caravan of camels crossing the Sahara Desert, bearing a load of the products of the tropical region of Central Africa.

There is one driver for every dozen camels. Upon starting, the loads are carefully packed on the camels' backs, each animal bearing about three hundred pounds. A day's march lasts sixteen hours, the camels traveling some thirty abreast, at the rate of about two miles an hour. Ordinary camels cannot travel more than three days without drinking; but the better grades are able to go six or seven days without water, and with almost no food.

4. Character of the inhabitants

The people of the Barbary States are not very progressive, and many of them are fierce and warlike; and, being Mohammedans, they have a deep hatred for Christians. There has, however, been some progress in Algiers and Tunis, under the influence of the French, especially in the cities and along the Mediterranean.

FIG 493. — An Arab school in northern Africa.

These people are seen at their worst in Morocco. Here many of the inhabitants are still barbarians, and some of the tribes among the mountains even refuse to recognize the rule of the Sultan. On the whole the people are cruel and treacherous, and if a vessel is wrecked upon their coast, it is sure to be plundered by them. Even within the last few years, Europeans have been seized and held for ransom.

Conditions of life in Morocco are illustrated by the following: The writer once visited a school in Tangier in which there were a dozen boys from nine to ten years of age. The room where they studied received its only light from the open door, and there were no seats, desks, or furniture of any kind. The children sat on the floor, around a long-bearded old man, who also sat on the floor; and the only object that each had before him was a page from the Koran, or Mohammedan Bible. What does such a condition of education suggest in regard to progress?

5. Principal cities

The capitals are the principal cities among the Barbary States. FEZ, one of the capitals of Morocco, is in the interior; but the Sultan does not live there all the year. Name the other capital. TANGIER, on the coast, is better known. In Algeria, the seaport, ALGIERS, is the capital and the largest city. Under the French it has become an important trading center. The same is true of TUNIS, the capital of the country by that name. Locate the capital of Tripoli.

3. SOUTHERN AFRICA

The Dutch were the first to colonize the southern part of Africa. They took possession of the country occupied by the

negroes, and introduced the industries of farming and ranching. Now the British control all this region, and the Dutch settlers, called *Boers*, are subjects of the British Empire. Formerly there were several separate colonies, the most important being *Cape of Good Hope*, *Orange Free State*, *Natal*, and *Transvaal*; but these are now united under a single colonial government, or confederation, as the different parts of Canada are.

Control of the region

The British have also laid claim to a large tract of tropical country north of the Dutch colonies, called *Rhodesia*.

At present, therefore, the British control a broad strip of territory from the southern tip of Africa northward to the southern end of Lake Tanganyika. What are the names of the colonies west of the British Territory? ANGOLA is a Portuguese colony. What nation controls the other? What country owns the section east of Rhodesia?

Although there are many British and Dutch settlers in South Africa, there are still more negroes, particularly in the tropical regions. Some of them, like the Zulus (Fig. 494), have fiercely opposed the advance of the whites, and still maintain partial independence. They have made some progress toward civilization.

FIG. 494. — A Zulu woman making a carpet.

Agriculture

Along the eastern coast, and in some of the interior valleys, agriculture is an important industry. Sugar cane, bananas, pineapples, tea, coffee, and rice are raised near the coast, where the climate is warm and damp. But wheat, tobacco, vegetables, and grapes are grown in the cooler south.

Much of South Africa is an arid plateau, where agriculture is possible only by means of irrigation. Upon this plateau, therefore, grazing is the chief industry. Immense numbers of cattle, sheep, and goats are raised, and also many ostriches (Fig. 495). From this it follows that the production of wool, hides, meat, and ostrich feathers is of importance. Why are the first three of special value to Great Britain?

The discovery of very rich deposits of gold in South Africa has brought great changes, as it did in the arid sec-

tion of the western United States. The gold is found scattered through a large bed of rock in the Transvaal, near the city of JOHANNESBURG. This is now the leading gold-producing region in the world; indeed, more gold is mined here than in the whole of North America.

Mining

There are other valuable minerals, such as copper, iron, and coal; but as yet they have been little developed. At KIMBERLEY, in Cape of Good Hope, there are wonderful diamond mines, that now supply most of the diamonds used in the world.

FIG. 495. — Ostriches on an ostrich farm in South Africa.

The diamonds occur as rounded crystals in a partly decayed volcanic rock, and are obtained by digging out the soft rock and carefully removing the crystals (Fig. 496), After this, the crystals must be cut into the proper shape and polished. There are various grades, some clear and beautiful, others impure and dull. So productive is this deposit of precious stones that it has already yielded three hundred million dollars' worth of diamonds.

FIG. 496. — Workmen picking out diamonds at Kimberley.

The lack of conveniences for transportation

The two chief rivers of South Africa are of little use as trade routes. The Orange River is not navigable because of lack of water. The other large river, the Zambezi, is navigable in its lower portion, by small boats; but the climate near the coast is warm, damp, and unhealthful. Rapids check further navigation, and at one point there is a cataract, the Victoria Falls, which

rivals even Niagara in grandeur. This cataract has a width of more than a mile, and a height of four hundred and fifty feet (Fig. 497). It is therefore both wider and higher than Niagara; but the volume of water is smaller.

Fig. 497 — The Victoria Falls in the Zambezi River of South Africa.

As you can see on the map (Fig. 478) there are now a number of railways in the southern part of Africa; and one extends even into Rhodesia.

The largest city of Cape of Good Hope, and the chief seaport, is Cape Town. It is connected with the interior by a railway, which forms the southern end of the proposed railway from Cape Town to Cairo.

Principal cities

A second important harbor is that of Delagoa Bay, upon which is situated Lourenço Marquez, the capital of Portuguese East Africa. Being connected by rail with the interior, this port has been much used for the shipment of Transvaal products. Durban, the seaport of Natal, is a small city, also connected with the Transvaal by rail. The two principal interior cities are Kimberley and Johannesburg. For what are they noted (p. 359)? There is no important town in German South Africa, which for the most part is an arid plateau. To what nation does *Walfisch Bay* belong?

4. Central Africa

This vast area is in large part unknown. Much of it is tropical forest; but on the northern and southern sides are open savannas (p. 348).

Value of the rivers for transportation

Because of the heavy rainfall of the forest belt, the rivers are large. The Nile and Zambezi, already described, and the Niger and Congo, all receive water from the equatorial rains. The Niger is navigable in sections; but there are rapids in some parts, and because of the dry climate the river grows shallow toward the north. Its large tributary, the Benue, is navigable.

It is the immense Congo that offers the best natural highway to central Africa. There is a series of falls in the river a short distance from the coast; but above these there are thousands of miles of navigable waters in the main river (Fig. 501) and its tributaries. A railway, two hundred and fifty miles in length, connects the lower Congo with Leopoldville, above the falls. Thence, at all seasons of the year, steamers may go a thousand miles up the river, and also into many of the tributaries.

Very few Europeans have settled in central Africa, and as yet there are no

large towns. The native blacks, who are still in a state of savagery, live for the most part in villages, in huts made of brush, or some similar material (Figs. 498, 499). Some of the tribes are cannibals.

The native inhabitants

Fig. 498. — Negroes and a native hut in Central Africa.

European nations have been active in claiming the greater part of central Africa; but they have little real control over the natives. The following are some of the more important parts of central Africa. Locate each one on the map.

Divisions of this region

The Sudan includes the vast area that lies between the Sahara and the tropical forest. A large part of it is savanna country. More than half of the Sudan is claimed by the French, and most of the remainder, including *Nigeria* and the *Egyptian Sudan*, is held by the British. What other British possessions do you find on the map? There is some gold in the west; but the principal products are ivory (Fig. 500), ostrich feathers, ebony, rubber, and gums.

1. The Sudan

East of the Sudan is *Abyssinia*, which is, for the most part, a rocky plateau, crossed by mountains. The inhabitants, who are mainly of the white race, adopted Christianity more than fifteen hundred years ago; but they are not now a very progressive people. The exports of

2. Abyssinia and surrounding territory

Fig. 499. — A negro village in Africa.

FIG. 500. — Negroes of Africa carrying the huge ivory tusks of the elephant.

Abyssinia include coffee, hides, skins, ivory, and gold.

Abyssinia is surrounded by colonies of other nations. Italy holds *Eritrea* and *Italian Somaliland.* What two other nations hold a part of the coast on the border of Abyssinia?

3. Small countries on the west coast

The map shows several small countries on the west coast of Africa. The divisions colored pink belong to the British; those marked green to the Germans. What are some of their names? Find a section belonging to Spain. What parts are controlled by France?

One of these small countries is *Liberia,* which is of especial interest to Americans. It is a negro republic, established in 1822 by Americans as a home for freed slaves; and its capital, MONROVIA, is named after President Monroe. The republic was modeled after *Sierra Leone,* next to it on the west, which the British founded still earlier as a home for liberated slaves.

4. Belgium Congo and neighboring territory

Belgian Congo, crossed by the Congo and its tributaries, is now under the control of Belgium. It is in large part a forest-covered plateau, but there are extensive areas of grass land. Hordes of savages inhabit the forests and the savannas; the buffalo, elephant, and leopard live on the plains; and the roar of the lion is frequently heard. Large quantities of rubber, ivory, palm oil, gum, and cocoa, as well as tropical woods, are obtained from this region. Some gold also is exported.

How many different nations have possessions along the borders of the Belgian Congo? Name the possessions that belong to each country. Observe to what extent the British claim Africa. What break is there in the British territory between the Cape of Good Hope and the Mediterranean? What varieties of climate do these British colonies include?

The need of more railways here

Several railways have already been built from the coast of Africa toward the interior. Find some of those on the map (Fig. 478). We have seen, also, that some of the great rivers are useful for the transportation of goods (Fig. 501). So also

FIG. 501. — A steamboat on the Congo.

are the three large lakes — Nyassa, Tanganyika, and Victoria Nyanza. Already there are steamers upon these lakes. A railway connects Victoria Nyanza with the sea, and others are planned. But many more railways are needed; for otherwise caravans of native porters must bear the products on their backs, traveling along narrow paths through the forest.

5. Islands near Africa

Islands on the east side

The island of Madagascar, controlled by the French, is larger than any of our states except Texas. It lies a little more than two hundred miles from the mainland, and produces cattle, hides, valuable tropical woods, rubber, and coffee.

The principal small islands on the eastern side of Africa are *Zanzibar* (British) near the coast, and *Réunion* (French), and *Mauritius* (British) east of Madagascar. Find each of these (Fig. 478). There are many others, as you can see. These islands are of value as naval stations.

Islands on the west side

Of the many small islands near the western coast the northernmost are the *Madeira Islands*. These, together with the *Cape Verde Islands* farther southwest, belong to Portugal. The *Canary Islands*, which belong to Spain, lie between these two groups.

Ascension Island and *St. Helena*, south of the equator, belong to Great Britain. St. Helena is noted especially as having been the prison home of Napoleon Bonaparte.

Review Questions

1. Describe the surface features of Africa. 2. What kinds of climate are there? 3. What can you tell about the people? 4. Why is Africa called the dark continent? 5. How has the Sahara Desert prevented the exploration and settlement of Africa? 6. How have the rapids and falls in the rivers interfered with its exploration? 7. State how the climate has had similar effect. 8. How have the forests, animals, and people likewise kept Europeans away? 9. How does it happen that South Africa is the best-known part? 10. What parts of Africa have been recently seized by Europeans? By what nations? 11. What improvements have been made by Europeans? 12. Tell something of the character of the people in northern Africa? 13. What do you know about the ancient history of Egypt? 14. Explain how the Nile River helps to support the inhabitants. 15. Name the agricultural products of Egypt. 16. Locate and describe the Suez Canal. 17. Tell about the peculiar government of Egypt. 18. What have the British done to improve the country? 19. Locate and state the chief facts about the leading cities. 20. Name, locate, and tell about the government of the Barbary States. 21. What about their surface and climate? 22. Their products? 23. What can you tell about the caravan trade? 24. What is the character of the people? 25. Name and locate the principal cities. 26. What nations control the southern part of Africa? 27. Name the parts controlled by the British. 28. What do you know about the agriculture there? 29. The mining? 30. The lack of conveniences for transportation? 31. Locate and state the chief facts about the leading cities. 32. How valuable are the rivers of central Africa for transportation? 33. Tell about the native inhabitants. 34. Locate the Sudan and name its divisions. What products are there? 35. State the principal facts about Abyssinia and surrounding territory. 36. Name and locate the small countries on the west coast. 37. State the principal facts about the Belgian Congo and neighboring territory. 38. Explain the need of railways there. 39. What can you tell about Madagascar? 40. Locate several island groups near Africa. To what nation does each group belong?

General Review, with comparisons

1. What rivers of North America resemble those of Africa in having rapids and falls that interfere with commerce? How have these obstacles been overcome in America? 2. Compare, as to length, the Congo with the Missouri (see Appendix); with the Amazon. 3. Make a drawing of the Nile and one of the Mississippi, showing the principal tributaries and cities. How do the two compare? 4. Compare the area of Lake Victoria Nyanza with that of Lake Superior. 5. Make a sketch

map of the Atlantic Ocean, and compare the position of Africa with that of South America. What part of the New World is in the same latitude as the Sahara Desert? 6. Cape Horn is how much farther south than Cape of Good Hope? 7. Compare southern Africa with southern South America in products and importance. Why the difference? 8. What products of Africa are cultivated also in the United States? 9. What products of Africa are not raised in our country? 10. Give reasons why the United States is a better country for white men to live in than northern Africa. Than central Africa.

Suggestions

1. Read the story of Joseph in the Bible. beginning in Genesis, chapter 37. 2. Read the story of Moses. 3. Find out some facts about the Pyramids. 4. Why are the British especially benefited by the Suez Canal? 5. What obstacles are there in the way of building railways across the Sahara? 6. Find out some facts about our short war with Tripoli in 1804. 7. Learn something about the missionary work in Africa. 8. Why has the Nile no large tributaries in its lower course, and the Niger none in its upper course? 9. Find some object made of ivory, and show it to the class. 10. Find out about the peculiar animal life upon the island of Madagascar. 11. Why was the southern point of Africa called the Cape of Good Hope? 12. Who were Bartholomew Diaz and Vasco da Gama, and what part did they take in the discovery of the water route to India? 13. Find some facts about the great African explorers of the last century, — such as Livingstone, Mungo Park, and Stanley. 14. Read one of the books of these explorers; you will find Du Chaillu's books on Africa very interesting reading. 15. Find out about the war between the British and the Boers, by which Great Britain gained control of the Dutch territory. 16. Draw an outline map of Africa and put in the principal countries, colonies, rivers, and cities.

SECTION III. AUSTRALIA, THE EAST INDIES, AND OTHER ISLANDS OF THE PACIFIC

Map study

1. Find Australia on a globe, and show how you would reach it by ship from New York. Through what waters would you pass? 2. How would you reach it from San Francisco? 3. In what part are most of the mountains? 4. The rivers? 5. The cities? 6. In what zones is Australia? What does this tell you about its temperature? 7. What parts of South America and of Africa are in the same latitude as southern Australia? 8. What are the principal islands of the East Indies? 9. In what direction are the Philippine Islands from Australia? Estimate the distance. 10. Find the Hawaiian Islands; New Zealand. 11. How does Tasmania compare in area with Pennsylvania? (See Appendix.) With your own state? 12. Make the same comparison for New Zealand. 13. For Borneo and New Guinea. 14. What nations claim parts of Borneo? New Guinea?

1. Australia

Location and area

Australia lies apart from the rest of the world. It is the smallest of the continents, the only continent wholly surrounded by water, and the only continent wholly in the southern hemisphere. With its area of nearly three million square miles, it approaches in size the United States and Europe.

Ownership of this continent

The names of the three eastern divisions of the continent — Victoria, New South Wales, and Queensland — suggest the country to which Australia belongs. What one is it? The British control only a part of the other continents, but Australia, the smallest of all the continents, they have entirely to themselves.

As in Canada, the several states, including the island of Tasmania on the south, have combined to form a Union. Together they form a British depen-

AUSTRALIA
AND
ISLANDS OF THE PACIFIC
Scale of Miles
0 200 400 600 800 1000
Manila
Adelaide
Dunedin
Cities with 50,000 to 100,000
Smaller Places
Capitals with less than 50,000
HOBART
Capitals
Other Cities
Railroads
PHILIPPINE ISLANDS
Manila
Bangkok
Saigon
Gulf of Siam
Cape Cambodia
MALAY PENINSULA
Singapore
BORNEO
CELEBES
EAST INDIES
Batavia
Surabaya
Sulu Sea
Celebes Sea
Banda Sea
Timor Sea
Arafura Sea
Coral Sea
Cape York
Cape Leveque
King Sound
NORTHERN TERRITORY OF AUSTRALIA
WESTERN AUSTRALIA
SOUTH AUSTRALIA
QUEENSLAND
NEW SOUTH WALES
VICTORIA
TASMANIA
HOBART
Adelaide
Melbourne
Sydney
Newcastle
Brisbane
Cape Byron
Great Australian Bight
Great Victoria Desert
Perth
C. Leeuwin
Northwest Cape
Shark Bay
Cape Otway
Port Phillip
Port Jackson
Port Curtis
Cooktown
Thursday I.
Torres Str.
Great Barrier Reef
Tropic of Capricorn
Tropic of Cancer
Equator
Mariana Islands (to Ger.)
Guam (to U.S.)
Wake I. (to U.S.)
Marshall Islands (to Ger.)
Western Caroline Islands
Middle Caroline Islands
Eastern Caroline Islands (to Germany)
Palau Islands
Gilbert Islands (to Gr. Brit.)
Ellice Islands (to Gr. Brit.)
Phoenix Is. (to Gr. Brit.)
Union Is. (to Gr. Brit.)
Samoa Islands
Fiji Islands (to Gr. Brit.)
Tonga or Friendly Is. (to Gr. Brit.)
Cook or Hervey Is. (to Gr. Brit.)
Hawaiian Islands (to U.S.)
Honolulu
Oahu
Maui
Kauai
Johnston I. (U.S.)
Palmyra I. (U.S.)
Washington I.
Fanning I.
Christmas I.
Howland I. (U.S.)
Baker I. (U.S.)
Jarvis I.
Gardner I. (U.S.)
Humphrey I.
Nassau
Bismarck Archipelago
New Hanover
New Mecklenburg
Kaiser Wilhelm Land (Ger.)
New Pomerania
Bougainville I.
Choiseul I.
Isabel I.
Malayta I.
San Christoval I.
Guadalcanal I.
Solomon Is. (to Gr. Brit.)
Santa Cruz Is. (Br.)
Espiritu Santo
Malligollo
New Hebrides
Erromango I.
Vanua Levu
New Caledonia (Fr.)
Loyalty Is. (to France)
Lord Howe I.
Kermadec Is. (to Gr. Br.)
North Cape
North Island
Auckland
South Island
New Zealand
Wellington
Christ Church
Dunedin
Chatham Is. (Br.)
South Cape
Stewart I.
Williams Engraving Co., N.Y.
Longitude 100° East 110° from 120° Greenwich 130° 140° 150° 160° 170° 180° Longitude 170° West 160° from 150° Greenwich

FIG. 502.

PHYSICAL MAP OF
AUSTRALIA
AND
ISLANDS OF THE PACIFIC
Scale of Miles
0 200 400 600 800 1000
KEY
Over 6,500 ft.
From 1,650 to 6,500 ft.
From 650 to 1,650 ft.
From 0 to 650 ft.
Sea Level
From 0 to 6,500 ft.
From 6,500 to 13,000 ft.
Below 13,000 ft.
ASIA
SOUTH CHINA SEA
HAINAN
LUZON
PHILIPPINE
ISLANDS
MINDORO
SAMAR
PALAWAN
NEGROS
Sulu Sea
MINDANAO
Gulf of Siam
Cape Cambodia
MALAY PENINSULA
NATUNA IS.
SULU ARCH.
Celebes Sea
BORNEO
MOLUCCA OR SPICE IS.
MARIANNE ISLANDS
GUAM
WAKE I.
HAWAIIAN ISLANDS
MARSHALL IS.
CAROLINE ISLANDS
PACIFIC
EQUATOR
GILBERT IS.
PHOENIX IS.
SUMATRA
BANCA
Mt. Indrapura
BILLITON
EAST INDIES
CELEBES
BURU
CERAM
Banda Sea
AROO IS.
NEW GUINEA
ADMIRALTY IS.
NEW MECKLENBURG
BISMARCK ARCHIPELAGO
NEW POMMERANIA
BOUGAINVILLE I.
CHOISEUL I.
ISABEL I.
SOLOMON ISLANDS
ELLICE IS.
JAVA SEA
BALI
FLORES
TIMOR LAUT
Arafura Sea
TIMOR
Sunda Strait
LOMBOK
SUMBAWA
SANDALWOOD
MELVILLE I.
Timor Sea
Torres Strait
Cape York
CAPE YORK PENINSULA
G. of Papua
LOUISIADE ARCHIPELAGO
SANTA CRUZ IS.
SAMOA IS.
TUTUILA
ESPIRITU SANTO
MALLICOLLO I.
NEW HEBRIDES
FIJI ISLANDS
VANUA LEVU
VITI LEVU
KANDAVU
ERROMANGO I.
TONGA OR FRIENDLY IS.
COOK OR HERVEY IS.
LOYALTY IS.
NEW CALEDONIA
CORAL SEA
GREAT BARRIER REEF
Gulf of Carpentaria
Kings Sound
Cape Leveque
Fitzroy R.
ASHBURTON RANGE
Great Sandy Desert
Northwest Cape
Ashburton R.
TROPIC OF CAPRICORN
MC DONNELL RANGE
L. Amadeus
AUSTRALIA
MUSGRAVE RANGE
Sharks Bay
Gascoyne R.
Steep Pt.
Lake Austin
Great Victoria Desert
L. Eyre
Cooper
L. Gregory
L. Torrens
L. Gairdner
Sandy Cape
Cape Byron
NORFOLK I.
KERMADEC IS.
LORD HOWE I.
Geographe Bay
Cape Leeuwin
King George Sound
Great Australian Bight
Spencer Gulf
KANGAROO I.
Encounter Bay
Murray R.
GREAT DIVIDING RANGE
Mt. Kosciusko
Cape Howe
Cape Otway
KING I.
Bass Strait
FURNEAUX IS.
Cradle Mt.
TASMANIA
INDIAN OCEAN
North Cape
Bay of Plenty
East Cape
NORTH ISLAND
Cape Egmont
Hawkes Bay
NEW ZEALAND
Mt. Cook
Cook Strait
SOUTH ISLAND
CHATHAM IS.
STEWART I.
South Cape
AUCKLAND I.
WILLIAMS ENGRAVING CO., N.Y.

FIG. 504.

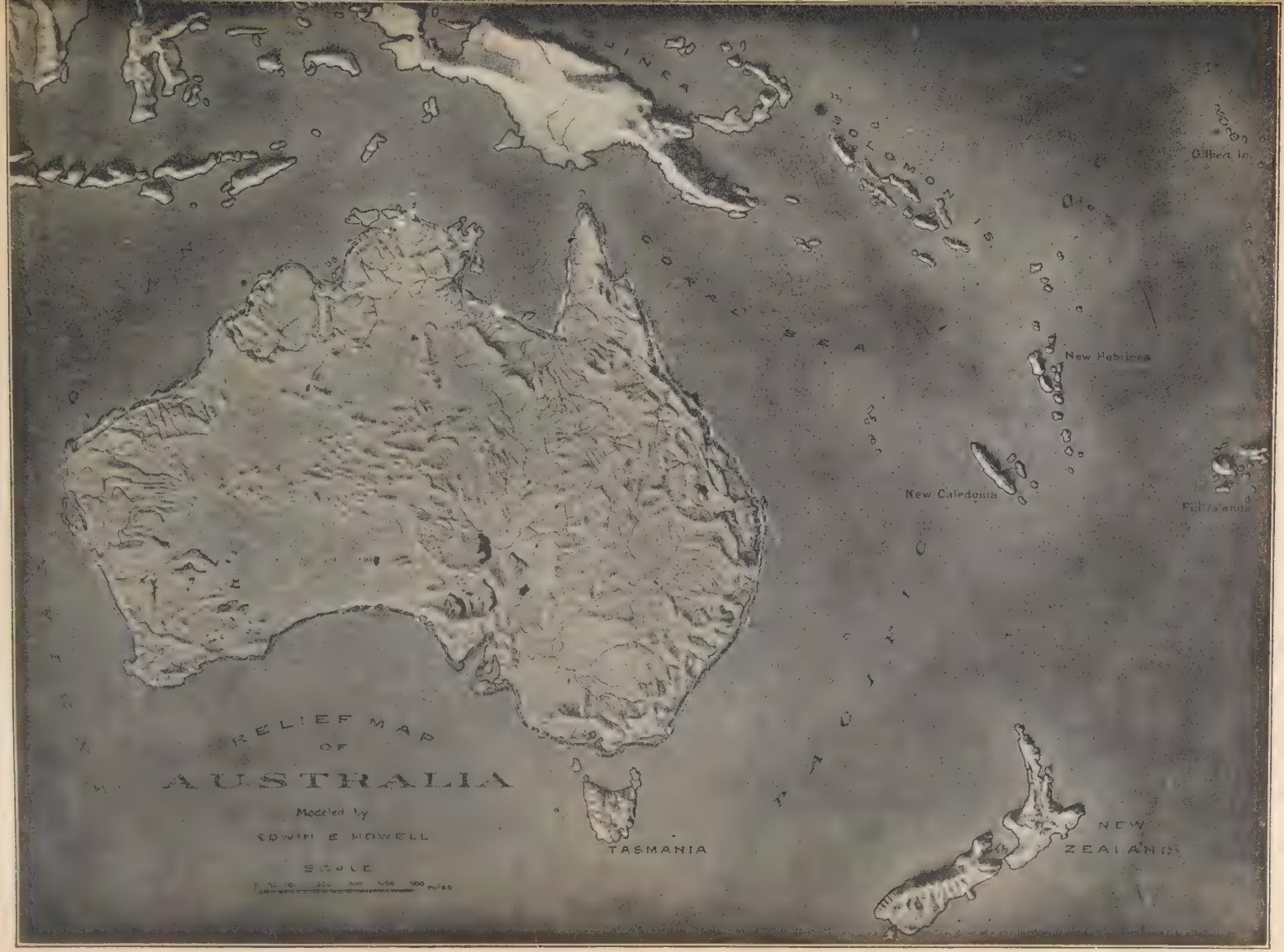


FIG. 503. — Relief map of Australia.

FIG. 505. — A view in the forest of eastern Australia. Notice the huge tree ferns that grow here.

On the rainy slopes, near the coast, some of the gum trees are giants. They rival the "Big Trees" of California, which also thrive where damp winds blow from the ocean. The undergrowth of the forest (Fig. 505), which is almost tropical in character, includes tree ferns, palms, and orchids. These dense woods are called the "bush."

None of the fierce animals, as bears, wolves, tigers, and lions, that are common in other continents, are found in Australia. The largest animal is the kangaroo (Fig. 507), which instead of running on all fours, jumps along on its hind legs, using its tail for support. There are other peculiar animals unlike those living in other parts of the world. Name some of those shown in Figure 507.

dency, as Canada does. This is called the *Commonwealth of Australia.*

Native plants, animals, and people of Australia

When the English began to settle Australia, more than a century ago, they found very strange plants, animals, and people there. Indeed, these were quite different from those found elsewhere.

Among the desert grasses, one of the most remarkable is the porcupine grass, which is so hard, wiry, and spiny as to make passage through it difficult.

The "scrub" trees of the arid interior have developed a foliage able to resist evaporation. For example, the gum trees (Eucalyptus) hold their narrow leaf blades vertically, with only the edges toward the sun's rays; the leaves of wattles (Acacia), and other plants, have shrunk to thorns; and some trees secrete odorous oils that check evaporation. Plants with leaves that taste of salt also thrive here. These "salt bushes" are so valuable as forage for sheep and cattle that they have been introduced into the arid section of southwestern United States.

FIG. 506. — Australian natives, who have just killed a kangaroo with the boomerang. The boy holds a boomerang in his hands.

Fig. 507. — Some of the Australian animals.

The native people were found to be a very low class of savages, and as some of them live in "the Bush" just mentioned, they came to be known as Bushmen. Some of these natives still live

FIG. 508.—Density of population in Australia and neighboring islands.

in the interior, building the rudest of shelters, and gaining their living by hunting. They still use a peculiar weapon, the *boomerang* (Fig. 506), which, when skillfully thrown, will fly in curves and even return to the thrower.

The first use made of the continent

When the English took possession of Australia, it seemed to be of little importance. At first it was used mainly as a *penal colony*, or prison, to which criminals were sent. It was a very secure prison, too, for there was little danger that a man sent there would soon reach home again.

Present population and its distribution

As the continent came to be better known, however, people began to go there of their own accord to live. Australia has now more than four million inhabitants, who instead of being distributed equally over all parts of the continent, are collected mainly in the southern and eastern portions (Fig. 508).

The reason for this distribution

The temperature is not the chief cause of this, for that is pleasant enough in most parts of Australia, as you can infer from the latitude. Show this by means of the map (Fig. 502). What portion is in the tropical zone?

The great difficulty is the lack of rain, and this is due to the location of the mountains and the direction of the winds. The larger part of Australia is a low plateau, with the chief mountain range on the eastern side. Point out these mountains. What are they named? In the southeast some of the peaks reach a height of more than a mile.

The prevailing winds come from the southeast (Fig. 509), so that they must blow over these mountains before reach-

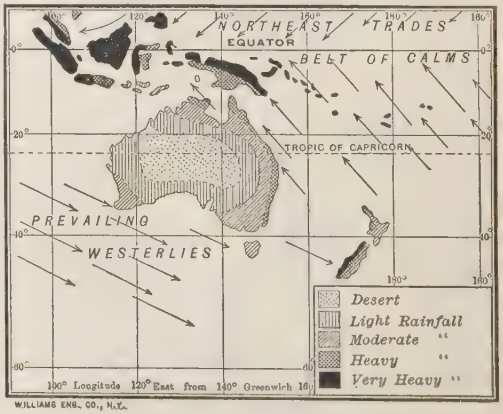


FIG. 509.—Showing the heavy rainfall on the east facing coast of Australia, where the trade winds blow. Notice also the arid interior and west coast. What is the condition in the belt of calms? What resemblance do you see to Figure 430?

ing the interior. This causes heavy rainfall on the eastern slopes; but as the winds continue on toward the interior, they become very dry. At a distance of one hundred and fifty miles

from the coast it is so dry that farming without irrigation is impossible; the only exception being what is called "dry farming." Farther west still, there are extensive deserts. How does this resemble the condition in the northwestern part of our own country (p. 105)?

If you examine the map, you will see signs of the desert, for some of the rivers flow into lakes that have no outlet. These lakes, therefore, are salt, like the Great Salt Lake of Utah. There is so little rainfall in the interior that the Murray River becomes smaller toward its mouth; and its chief tributary, the Darling, dries up almost entirely in its lower course. Such rivers cannot be of use for navigation, and therefore, unlike the Mississippi, they have no large cities along their banks.

When it is remembered that the northern part of Australia has a tropical climate, and that the central and western parts are arid or desert, we can understand why most of the people live in the southeastern part. What good farm land there is, is found mainly there; here is the chief river, the Murray; and here are the principal cities.

Fortunately the coast line in southeastern Australia is also favorable to settlement. For long distances the coast elsewhere is so regular that there are no good harbors; but the sinking of the land in the southeastern part has formed excellent ports, on some of which large cities have grown.

Agricultural products

Finding native plants and animals of little use, the English began to import others. Merino sheep, for instance, were taken there and found to thrive (Fig. 510).

Sheep were first known in Asia; and

Fig. 510.— A flock of sheep in the sheep raising country of New South Wales in Australia.

FIG. 511. — Harvesting oats in Australia.

the ancestors of the Merino were such as those tended by Jacob. From Asia the breed spread along the Mediterranean and found in Spain a favorable, dry climate. From this point flocks were taken to the early Dutch colony of South Africa, and thence to Australia. Here the dry climate and the native plants have still further improved the quality of the wool.

In the early days of Australia the flocks were reared upon the unfenced government land, as in the western part of the United States (p. 114). The sheep were driven to pasture and watered and cared for at night by lonely shepherds, much as in the days of David. Now, however, the land is largely fenced with wire, each sheep station having its own *run*, or ranch. To-day, grazing is the leading occupation in Australia, the best section for sheep raising being Victoria and New South Wales (Fig. 510). There are more than eighty-three million sheep, and wool is the principal export of the commonwealth.

Horses, cattle, and swine also are raised in large numbers; and frozen and canned beef, mutton, hides, and tallow, are exported. Many cattle are raised for dairy products, and butter is sent to England. At the season when the cows of Belgium and Denmark are kept in barns on account of the cold, the dairy herds of New South Wales feed on fresh pastures. How can you account for this fact?

Wheat, corn, and oats flourish also (Fig. 511); and many fruits and vegetables, such as we raise in our country, are grown in southeastern Australia and in Tasmania. Farther north, in the torrid zone, tropical fruits are raised, and there are also valuable products from the tropical forests.

Other farm products are sugar, cotton, and rice. Much fruit is raised; oranges in the north, and the orchard products

and small fruits of cool temperate lands, in the south. In Victoria and South Australia, there are many vineyards.

Minerals

Australia is a noted mineral region, producing much gold. Almost at the same time that gold was discovered in California, it was also found in Australia, and tens of thousands of people rushed there to wash the sands for the precious metal. For many years this continent has ranked as one of the leading gold-producing regions of the world. Silver, copper, iron, coal, and other mineral products also are mined here.

Manufactures

Manufacturing is not yet greatly developed in Australia. Some wool is woven into cloth; some leather is tanned and made into shoes; and much flour is made from the wheat. There are sawmills and planing mills; and other forms of simple manufacturing are carried on. But most of the wool, hides, and metals are exported; and since this is a British colony, they go mainly to England. Some of the imports, many of which are received from England, you can probably name. Gradually, however, the Australians are developing manufacturing, and are thus coming to depend upon themselves.

FIG. 512. — A street in Sydney, New South Wales.

Principal cities

Since the people and the industries are found mainly in the humid south-eastern part of Australia, we see why several large cities have grown up in that section. The largest is MELBOURNE, the capital of Victoria, and the principal seaport, beautifully situated at the head of a broad harbor. The next in size is SYDNEY (Fig. 512), the capital of New South Wales, which is almost as large as Melbourne. It is

FIG. 513. — One of the grand fiords on the coast of New Zealand, where there is some of the finest scenery in the world.

the oldest city of Australia. ADELAIDE, the capital of South Australia, is the third city in size. What is the capital and the chief city of Tasmania? Of Queensland?

One third of the Australian people live in the capitals of the six divisions of the commonwealth. These capitals are seaports connected with the interior by railway, and have therefore become important cities. They have fine government buildings and large public parks and gardens. A few mining centers, like BALLARAT and BENDIGO, in Victoria, have become large towns.

2. NEW ZEALAND

1. Surface and climate

More than a thousand miles southeast of Australia are the two large mountainous islands of New Zealand, the North Island and the South Island. The surface of these islands is very rugged, and there is much wonderful scenery (Fig. 513). The mountains are very grand, and some of the highest peaks are volcanic cones. Heavy snow falls upon the high mountains of South Island, and from these snow fields large glaciers descend through the mountain valleys. In North Island there are active volcanoes, and also hot springs and geysers (Fig. 514), like those of the Yellowstone National Park.

FIG. 514. — A geyser in eruption in New Zealand.

Since these islands lie in the belt of stormy west winds, there is heavy rainfall on the western slopes. The mountains are consequently clothed with forests of pine and other trees. On the lee, or eastern, slopes the rainfall is less, and the land is covered with wiry grasses. What effect must the presence of the ocean on all sides have upon the temperature?

2. Native inhabitants

The native people, or *Maoris*, who must have come to the islands in boats, were a hardy, warlike race, living in protected villages, in the midst of cultivated fields. At first they opposed the white men, and the country was not settled until a half century after the founding of Sydney. After a time the Maoris were conquered, and those that survive live mostly in the interior of the North Island. Many of them are civilized, and they are now allowed representatives in the legislature.

3. Industries and government

As in Australia, grazing is the leading industry. There are twenty million sheep, and wool and frozen mutton are exported to England. Cattle likewise are raised, and butter is exported. Agriculture is important, but much land that is suited to farming has never been cleared of forest.

In the south the crops are those of the cool temperate belt; but in the north the climate is mild enough for the growth of oranges. There are gold, silver, and coal mines among the mountains, and valuable timber is obtained from their slopes. Manufacturing is not greatly developed, and is chiefly for home use.

The situation of these islands, in the

temperate zone, is favorable to rapid progress, and the British people who have settled here have done much to develop the resources. They have also established one of the best governments in the world. Being so far away from Australia, and therefore with such different interests, New Zealand has not joined the Australian commonwealth, but is known as the *Dominion of New Zealand.*

4. Commerce and chief cities

Several short lines of railway connect the settled interior with the seaports; roads and stage lines extend to the more distant districts; and steamers ply around the coasts and to distant countries. There are four cities of nearly the same size, the smallest of which is WELLINGTON, the capital, and the largest, AUCKLAND. Find the other two on the map (Fig. 502).

3. THE EAST INDIES

1. Divisions among them

Between Asia and Australia are hundreds of islands, some very large, others so small that they find no place on our map. This group of islands, or archipelago, known as the East Indies, has animals, plants, and people similar to those of Asia. New Guinea, however, which is nearest to Australia, resembles that continent rather than Asia.

While the islands farther west are overrun with Malays from Asia, the natives of New Guinea are like the native Australians. The animal life also resembles that of Australia. It is believed, therefore, that New Guinea and Australia were once connected. For these reasons New Guinea is usually considered a part of Australia, while the islands west and northwest are classed with Asia.

The *Philippine Islands,* which belong to the United States, are really a northern extension of the East Indies. What can you say about them (p 146)?

2. Their ownership

It was the East Indies, as well as India and the Malay Peninsula, that Columbus was trying to reach. Their products are so valuable that the European nations have eagerly taken possession of them. England, as usual, has a part. Point it out. This time, however, she has not obtained the lion's share. That belongs to the little country of Holland. Name the large islands that are controlled wholly, or in part, by the Dutch. What nations control the island of Timor? What three have possession of New Guinea?

3. Their area

The immense size of these islands is shown by the fact that Java has a greater area than New York State, while Sumatra is larger than California. Borneo, one of the largest islands in the world, is larger than all the New England and Middle Atlantic States together.

New Guinea, another one of the large islands of the world, has an area equal to Texas and Pennsylvania combined. The Dutch East Indies alone are fifty times as large as The Netherlands, and have seven times as many inhabitants, or nearly half as many as the United States.

4. Their surface and climate

All of the larger islands are mountainous; in fact they are parts of mountain ranges rising out of the sea. Among them are many active volcanoes, some of which have had terribly destructive eruptions. Many of the smaller islands are merely coral reefs slightly raised above the ocean.

Lying so near the equator, the islands all have a tropical temperature and heavy rainfall. The dampness and heat together make them in some parts very

unhealthful. Because of the climate, and of the mountains and the dense jungles, there are large areas which have never been explored.

Fig. 515. — New Guinea houses built in trees.

5. The products

The forests supply valuable woods and gums, including rubber and camphor. Large areas, especially in Java, are highly cultivated and produce quantities of rice, sugar cane, and coffee. In the production of the last two articles, Java is one of the leading countries of the world. Other products are tea, indigo, tobacco, cotton, and grains. Among the noted products of the East Indies are spices, such as pepper, cloves, and nutmegs; in fact, one of the island groups is known as the Spice Islands. What is its other name? There are also valuable minerals, including tin, gold, and precious stones; and in the tropical sea beautiful pearl shells are found.

The largest city among all the islands in this region is Manila, in the Philippines; and next in size is Batavia, which is the center of the colonial government of the Dutch.

4. Islands of the Pacific

The map (Fig. 502) shows the western Pacific dotted with island groups; but these islands are all very small. What names among them have you heard before? Name and locate

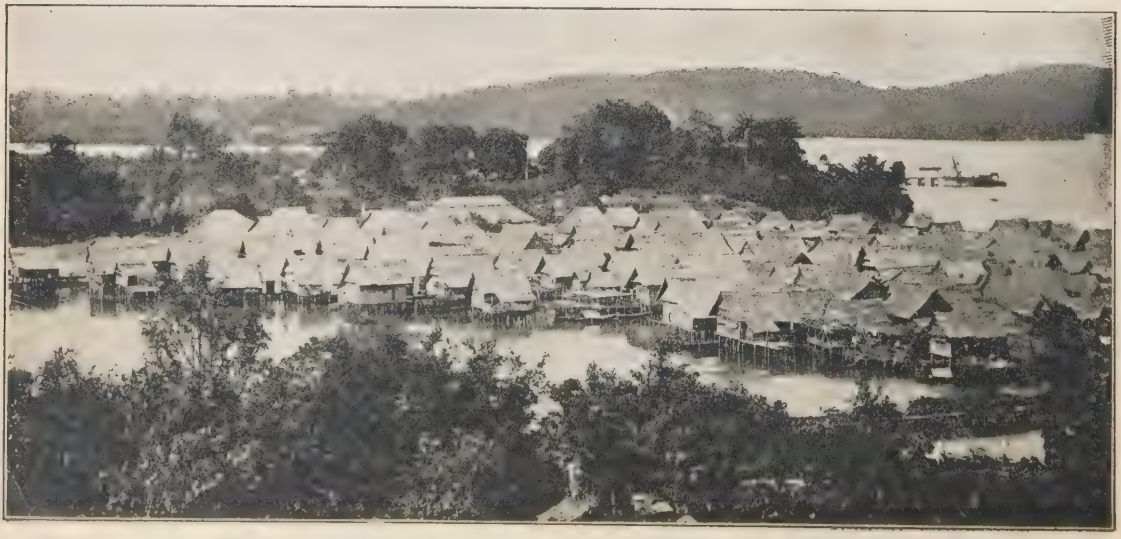


Fig. 516. — A Malay village built on piles in the water.

those that belong to the United States. All together, these thousands of islands have a population of less than a million persons.

The "high," or volcanic islands, like Fiji and New Caledonia, have peaks which rise several thousand feet. On these islands there are sugar and coffee plantations, as in Hawaii, while tropical fruits, such as bananas and pineapples, are raised in large quantities.

On the "low," or coral islands, on the other hand, the cocoanut palm is the mainstay of human life, supplying food, clothing, shelter, boats, and many utensils. Copra, the main export from Samoa, and from many other Pacific islands, is the dried meat of the cocoanut. It is of value for food, and for oil.

Review Questions

1. Locate and state the area of Australia. 2. Who owns Australia, and how is it governed? 3. What can you tell about the native plants? 4. About the native animals? 5. State some facts about the Bushmen. 6. What use was first made of Australia? 7. What is the population? 8. In what part of Australia do the inhabitants live? 9. State the main reasons why they live in that section. 10. Describe the coast. 11. State important facts about the sheep industry. 12. What other animals and animal products are there? 13. What are the agricultural products? 14. How do they change from north to south? 15. What can you tell about the minerals? 16. What is the condition of manufacturing? 17. Name and locate the principal cities. 18. Which of these are capitals, and of which division of the Commonwealth? 19. What are the surface features and climate of New Zealand? 20. What about the native inhabitants? 21. The industries and government? 22. Name and locate the chief cities. 23. Tell about the East Indies; divisions among them; government; area; surface and climate; products and chief city. 24. How does New Guinea differ from the East Indies? 25. What can you tell about other islands of the Pacific?

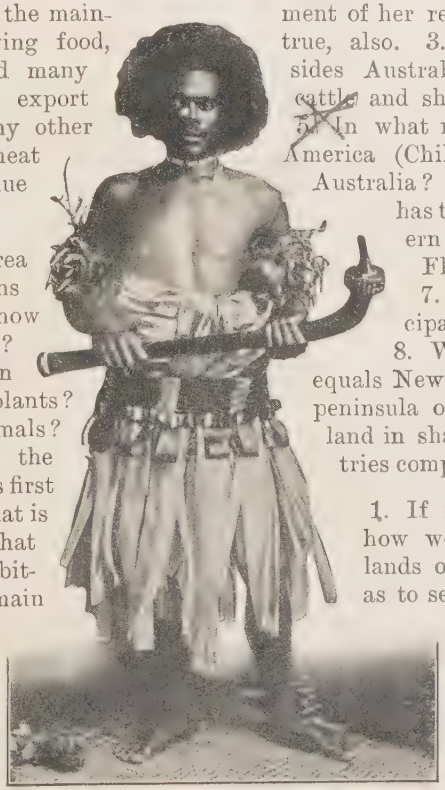


Fig. 517. — A native of Fiji Islands.

General Review Questions and comparisons

1. Australia resembles South Africa in its surface, climate, occupation, and products. Show how this is true. 2. Australia also resembles the western part of the United States in climate, in occupations and products, and in the order of development of her resources. Show how this is true, also. 3. What other countries, besides Australia, are especially noted for cattle and sheep? 4. For gold mining? 5. In what respects does southern South America (Chile and Argentina) resemble Australia? 6. What part of Australia has the same latitude, in the southern hemisphere, that southern Florida has in the northern? 7. Name and locate the principal desert regions on the earth. 8. Which of our states most nearly equals New Zealand in area? 9. What peninsula of Europe resembles New Zealand in shape? How do the two countries compare in area? In population?

Suggestions

1. If it were within your power, how would you arrange the highlands of Australia so as to secure the most even distribution of rain? 2. Estimate the greatest length of New Zealand. Compare it with a line extending from New Orleans northward. 3. Estimate the distance from Batavia to Manila. 4. Write your impression of the climate of Melbourne in January; in July. 5. Read Whittier's poem on the Palm Tree. 6. Learn something about the work of missionaries in the small Pacific islands. 7. Find out about the trouble caused by rabbits that were imported into Australia. 8. By what routes can you go from New York City to Australia? Through what waters? Which would be the shortest? About how many miles shorter? 9. Make a sketch map of Australia, putting in the principal mountains, rivers, and cities. 10. Read in Tarr's "Elementary Geology" (pp. 151–156) about the origin of atolls.

PART VI

REVIEW OF UNITED STATES AND COMPARISONS WITH OTHER COUNTRIES

The Great Powers of the world, and their forms of government

We have seen that there are six nations of Europe that are called Great Powers, or World Powers. Name each of them (p. 237). The United States makes a seventh World Power, and Japan an eighth. Give the principal boundaries of each. Which two have a republican form of government? Which one is an absolute monarchy (p. 282)? What form of government have the other five? Each of the other nations on the earth is called a "Minor" or Lesser Power, being much weaker than any one of the eight World Powers. On what continent is each of the eight World Powers located? What continents, therefore, contain no Great Powers?

Continents and zone to which the World Powers belong

In what zone does the United States lie? In what zone is the main portion of the other World Powers? Can you give any reasons why the chief nations of the earth are found in the temperate zone?

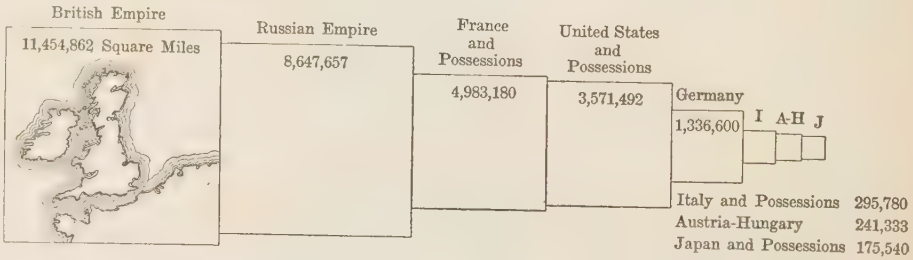


Fig. 518.—The areas controlled by the eight World Powers (1910).

United States compared in area and population with other Great Powers

The greatest of these eight Powers, in area, is the British Empire, as seen in Figure 650. What is the rank in area of each of the others?

In Figure 519 the British Empire is seen to have also

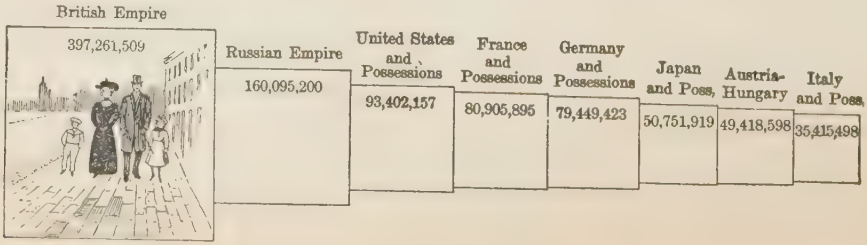


Fig. 519.—Population of the eight World Powers (1910).

POSSESSIONS OF THE
LEADING NATIONS OF THE WORLD
United States
British Empire
Germany
France
Russian Empire
ARCTIC OCEAN
GREENLAND
Baffin Bay
Davis Strait
ALASKA
Bering Sea
Hudson Bay
DOMINION OF CANADA
NORTH AMERICA
Montreal
NEWFOUNDLAND
San Francisco
UNITED STATES
New York
Mexico
Gulf of Mexico
ICELAND
BRITISH ISLES
FRANCE
Berlin
GERMANY
St Petersburg
RUSSIAN EMPIRE
NOVA ZEMBLA
NEW SIBERIA
SPITZBERGEN
FRANZ JOSEF LAND
EUROPE
ASIA
Gibraltar
ALGERIA
SUDAN
AFRICA
EGYPT
Calcutta
INDIA
CHINESE EMPIRE
JAPAN
PACIFIC OCEAN
ATLANTIC OCEAN
INDIAN OCEAN
Amazon R.
Lima
La Paz
SOUTH AMERICA
Pernambuco
Buenos Aires
AUSTRALIA
Melbourne
Sydney
NEW ZEALAND
TASMANIA
Scale along the Equator
0 1000 2000 3000 4000 5000
Statute Miles
WILLIAMS ENGRAVING CO., N.Y.

FIG. 520.

the largest population of the eight. What is the rank of each of the others in population? What is the rank of our country in area and in population compared with the other World Powers?

Dependencies of the Great Powers

The Power that has the most important foreign possessions is the British Empire. In Figure 344 point out the principal foreign possessions of the British. Can you account in any way for the fact that the British have control over so much of the earth? Point out the foreign possessions of the United States (Fig. 355). Of Russia; Germany; France (Fig. 520).

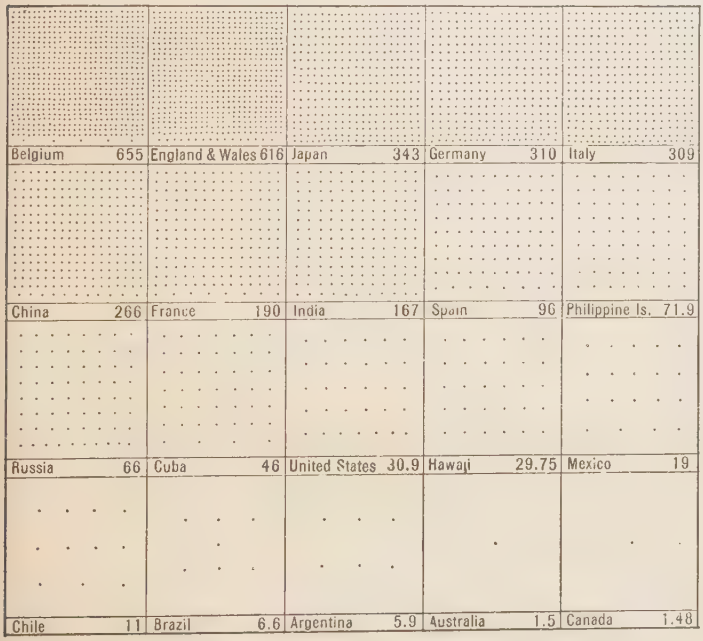


FIG. 521.—Density of population of some of the countries of the world (1910).

Other large and promising countries of the world

It should be remembered that the eight World Powers mentioned are not the eight *largest* nations of the earth. They are simply the eight *strongest* nations. China, for instance, is much larger both in area and population than most of the eight. Yet it is a backward nation, for reasons that we have already studied. What are they (p. 327)? China, however, is a very promising nation for the future. Why (p. 328)? What do you know about its occupations (pp. 329–331)?

Argentina is the most promising country in South America. What can you tell about it (p. 216)? What other two nations of that continent might be compared with Argentina in importance (pp. 217–226)? Tell the principal facts about each. How does Brazil compare with the Great Powers in area? (See Appendix.)

Immigrants to the United States

About one person in eight now living in the United States came here from some other land. Figure 326 shows which countries have been sending us the greatest number. Which ranks second in this respect? Can you name other countries not named in this diagram that have sent us immigrants? Which of the Great Powers has been sending us the most immigrants? Which have sent very few?

Density of population in several countries

Figure 521 shows the *density of population*, or the number of people to the square mile, in some of the countries in the world. From this it will be seen that the United States is very thinly settled, compared with many countries. Compare the United States

in this regard with Belgium, England, Cuba, Mexico, and Canada.

Surface features

Name and locate the principal mountain systems in the United States. Describe the drainage of the United States. Name and locate our principal rivers. Which continent has its lofty mountains arranged most nearly like those of North America? Show this. How does the arrangement of mountains in North America compare with that in Europe? Compare the surface of the United States with that of European Russia (p. 282); of Brazil (p. 217); of China (p. 329).

Climate

What is the latitude of the northern boundary of the United States? Of the southern? Compare the latitude of our country with that of the British Isles (Fig. 327); with that of Germany, Italy, Egypt, India, China, Argentina, Australia.

How do ocean currents affect the temperature of the eastern part of our country? Of the western part (p. 203)? Compare our temperature with that of countries in Europe having most nearly the same latitude. Why the difference (pp. 234, 268)?

Tell about the prevailing winds and the rainfall in western United States (p. 194); the cyclonic storms and their effects (p. 197); the prevailing winds of Europe (p. 234); the rainfall there, with reasons (p. 234). In what respects are North America and Europe alike in regard to winds and rain?

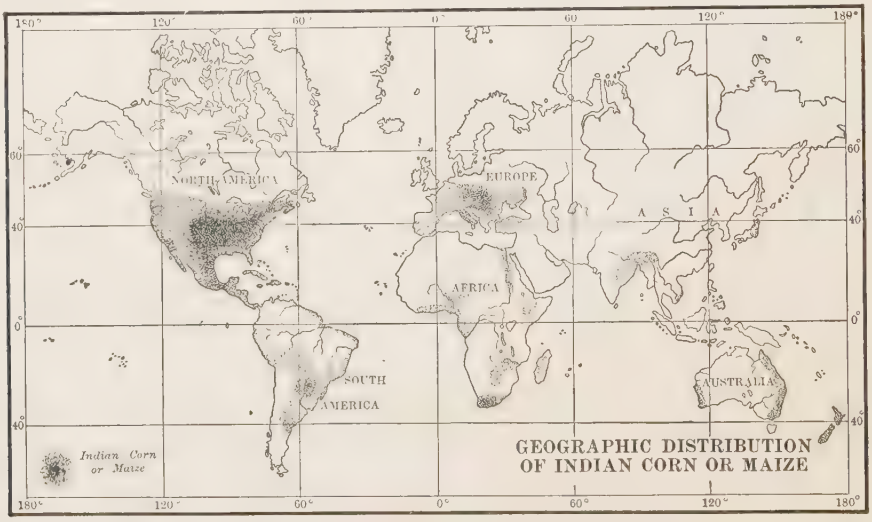


FIG. 522. — Corn sections of the world.

In spite of the fact that some nations are larger and more densely settled, the United States leads the world in many very important respects, and approaches leadership in several others. Figure 654 shows that no nation is a close rival to us in the production of Indian *corn*. What countries, however, raise large quantities of it? Why is no Indian corn raised in the British Isles (p. 240)?

Raw food products

1. Corn

2. Wheat

Wheat is more widely cultivated than corn (Fig. 523). Yet we are far in the lead in the production of that grain. Point out

(Fig. 523) the leading wheat fields of the world. Which sections are important for both wheat and corn? On which side of the Atlantic is wheat raised farthest north? Why (p. 234)? Name in order the eight countries that lead in the production of this grain (Fig. 524).

Note what sections of the world raise

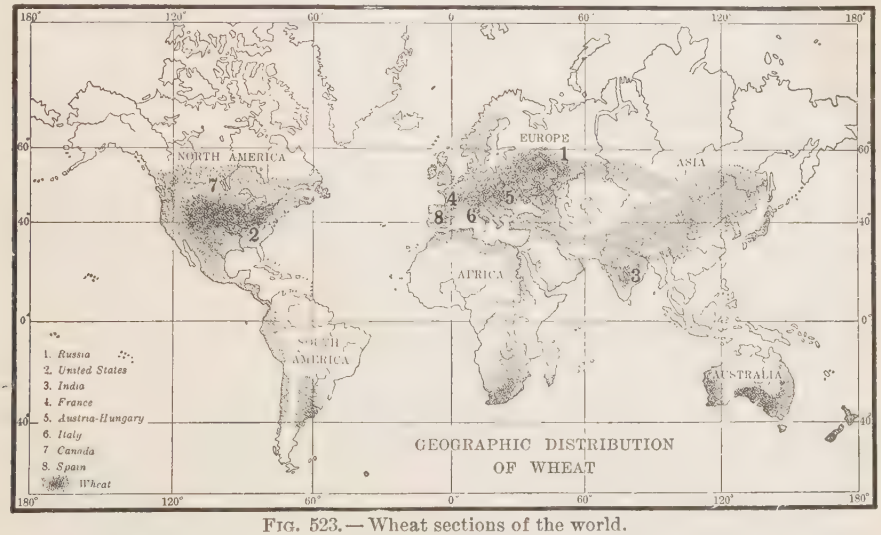


FIG. 523. — Wheat sections of the world.

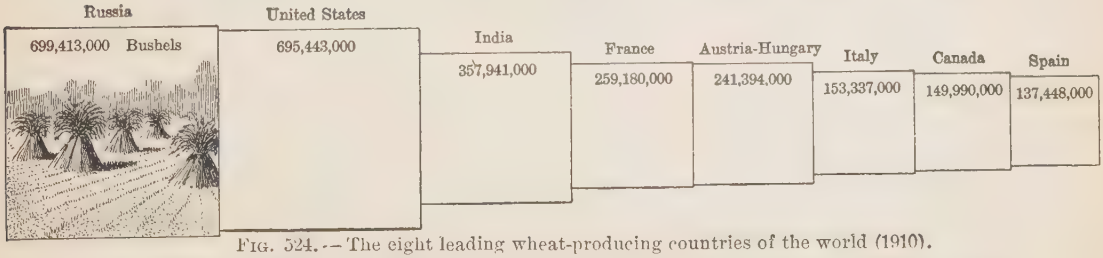


FIG. 524. — The eight leading wheat-producing countries of the world (1910).

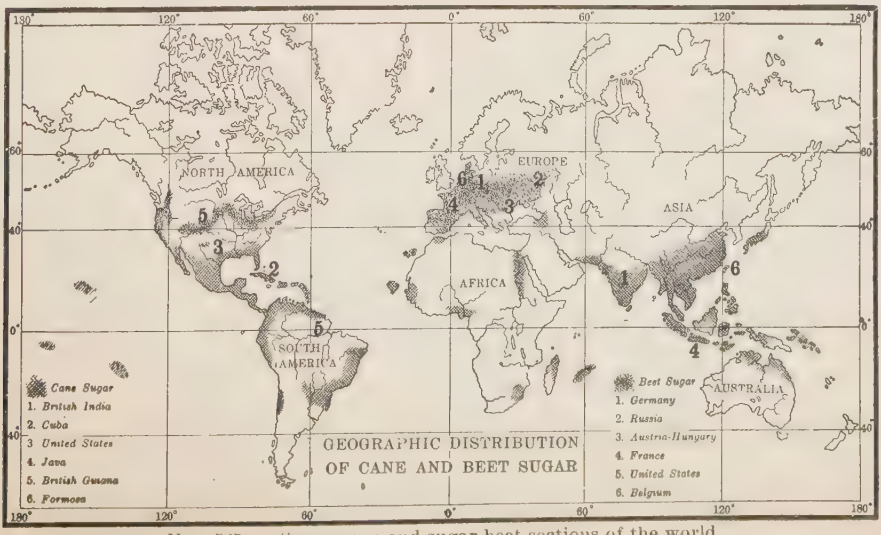


FIG. 525. — Sugar cane and sugar beet sections of the world

3. Sugar cane and sugar beets

sugar cane and *sugar beets* (Fig. 525). Name countries and islands engaged in these industries. Is it mainly the sugar beet or sugar cane that is raised in Europe? Why (p. 53)? What is our rank in the raising of sugar cane and sugar beets (Fig. 526)? Name the six regions that lead in this kind of agriculture.

kind of climate does it require, and how is it raised (p. 54)?

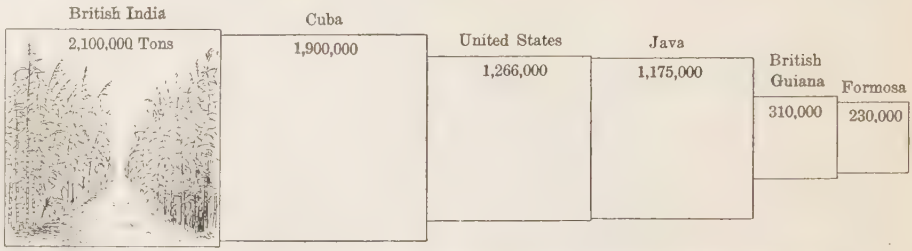


FIG. 526. — The six countries producing the most sugar cane and sugar beets (1910).

4. Rice

Figure 527 shows the principal *rice* sections of the world. What continent grows by far the largest amount? What countries in that continent? What other parts of the world produce much of it? What parts of the United States? What

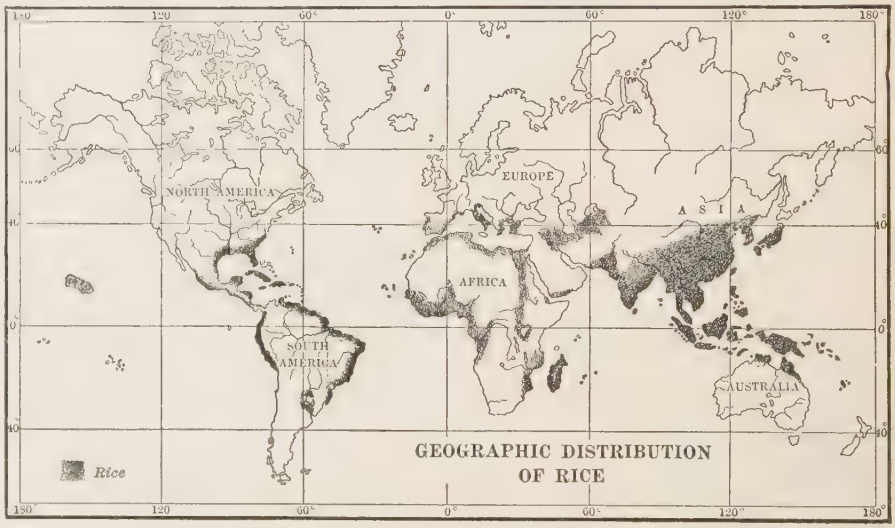


FIG. 527. — Rice sections of the world.

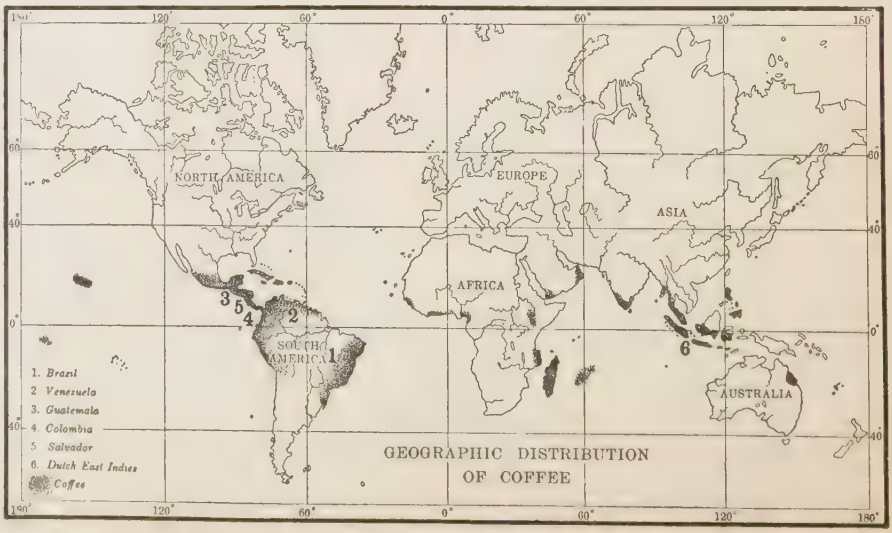
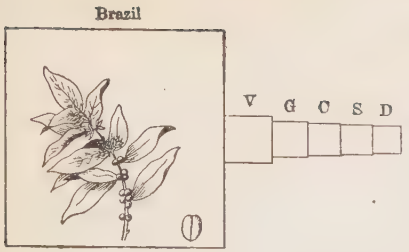


FIG. 528. — Coffee-producing sections of the world.



Brazil	2,232,911,000 Pounds
Venezuela	93,987,000
Guatemala	81,120,000
Colombia	79,366,000
Salvador	63,330,000
Dutch East Indies	61,183,000

FIG. 529. — Leading coffee-producing countries (1910).

5. Coffee

Figure 528 shows that coffee is not grown within our states, although in almost every household it is in daily use. Notice, however, that it is produced in Cuba, Porto Rico, and the Philippine Islands (Fig. 528). To what climate and countries is it confined? State the rank of the principal coffee-producing sections, and compare their output (Fig. 529).

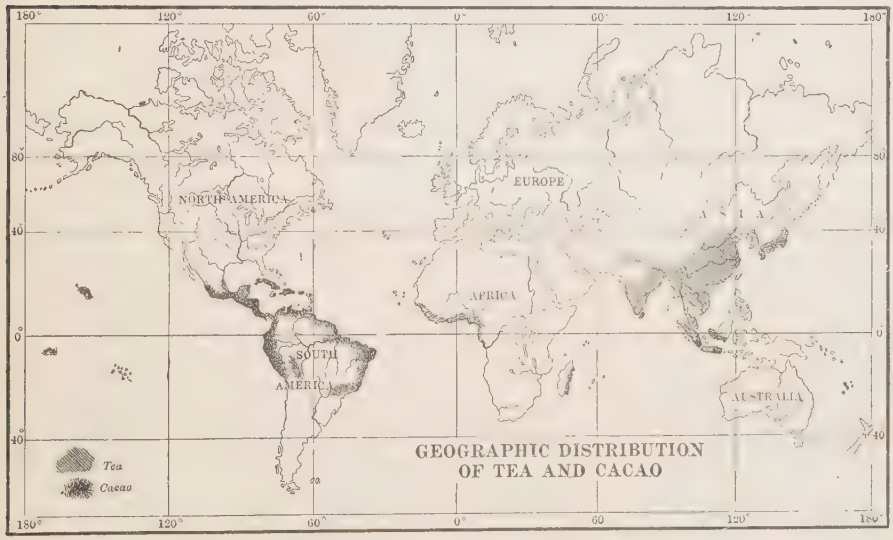


FIG. 530. — Tea-producing sections of the world.

6. Tea

Our *tea* (Fig. 530), also, comes almost entirely from other countries. Mainly from what parts of the world? Name the principal countries and islands.

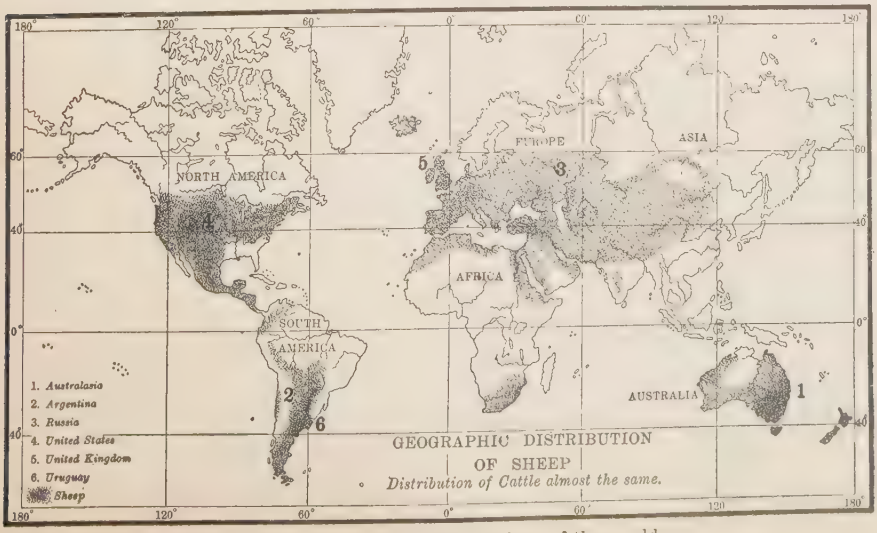


FIG. 531. — Cattle and sheep sections of the world.

7. Cattle and sheep

Note the distribution of *cattle* and *sheep* (Fig. 531). What countries are included? Recall some facts concerning sheep raising in Australia, Argentina, and

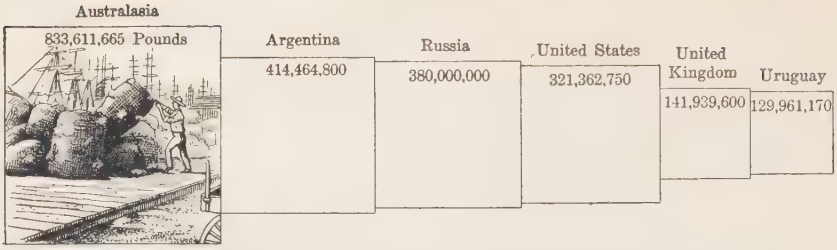


FIG. 532. — The six leading wool-producing countries (1910).

the United States. Why are cattle and sheep raised in the same regions?

Figure 532 shows the six leading *wool*-producing countries. Name them. What is the rank of the United States?

Raw textile products

1. Wool

the principal sections (Fig. 533). Within what parallels of latitude are they found? Name the eight countries that lead in its production (Fig. 534). How much greater is the output of the United

2. Cotton

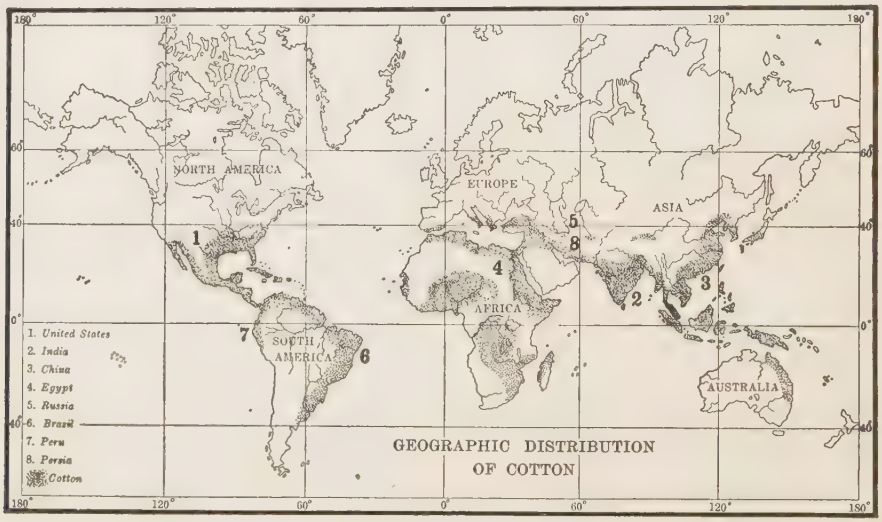


FIG. 533. — The cotton sections of the world.

Cotton grows only in warm climates, so that fewer countries raise it. Name States than that of the seven other countries together?

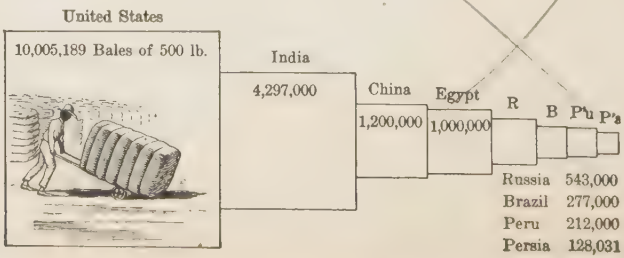


FIG. 534. — The eight chief cotton-producing countries of the world (1910).

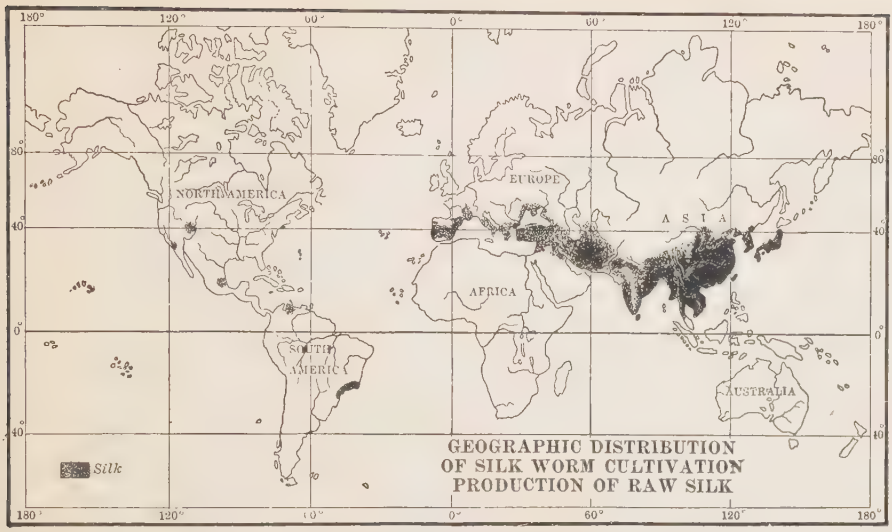


FIG. 535. — The raw silk-producing sections of the world.

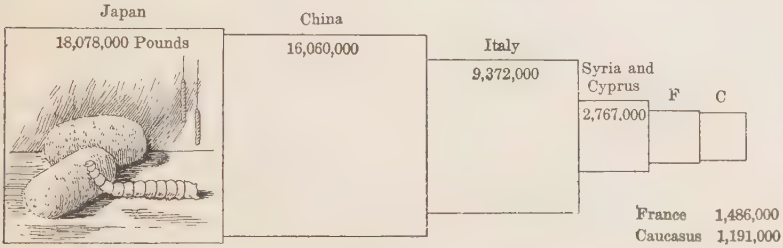


FIG. 536. — The six leading raw-silk-producing countries (1909).

What about this industry in the United States? Name in order of amounts produced the countries that produce raw silk (Fig. 536). Tell how the work is carried on (p. 263).

3. Raw-silk

Figure 535 shows the sections that produce silk. What are their names?

The great importance of *coal* and *iron* for use in manufacturing has often been pointed out. Figure 537 shows that the *coal fields* are very limited. What countries have little or no coal? Name the leading coal-producing sections, and state the rank of the United States in the production of this mineral (Fig. 538).

Mineral products

1. Coal

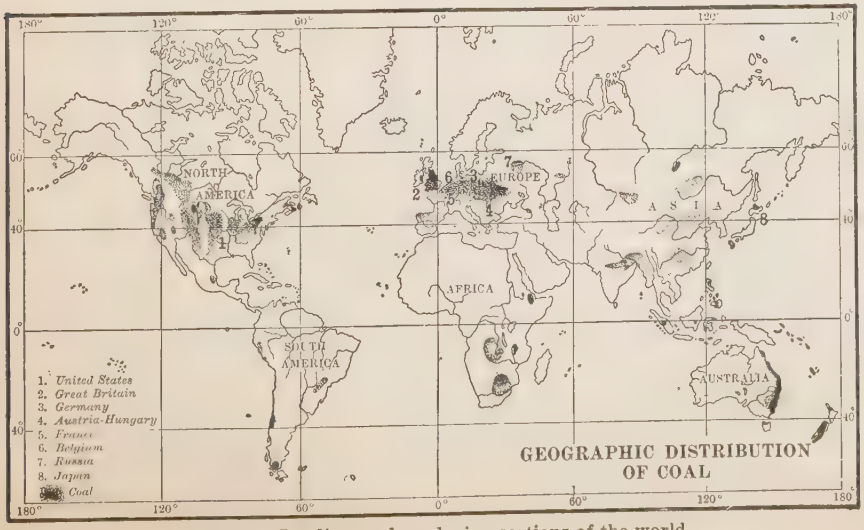


FIG. 537. — Leading coal-producing sections of the world.

The United States leads the world in the production of *petroleum*, or mineral oil (Fig. 539). The second most im-

2. Petroleum

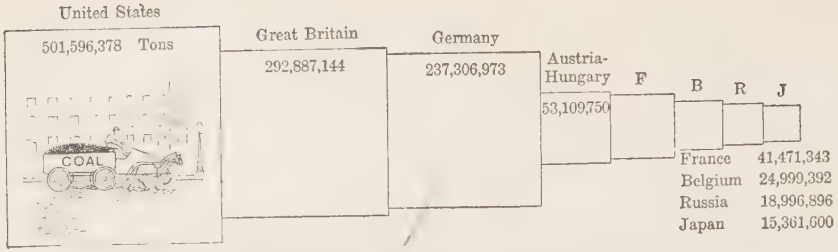


FIG. 538. — The eight leading coal-producing countries of the world (1910).

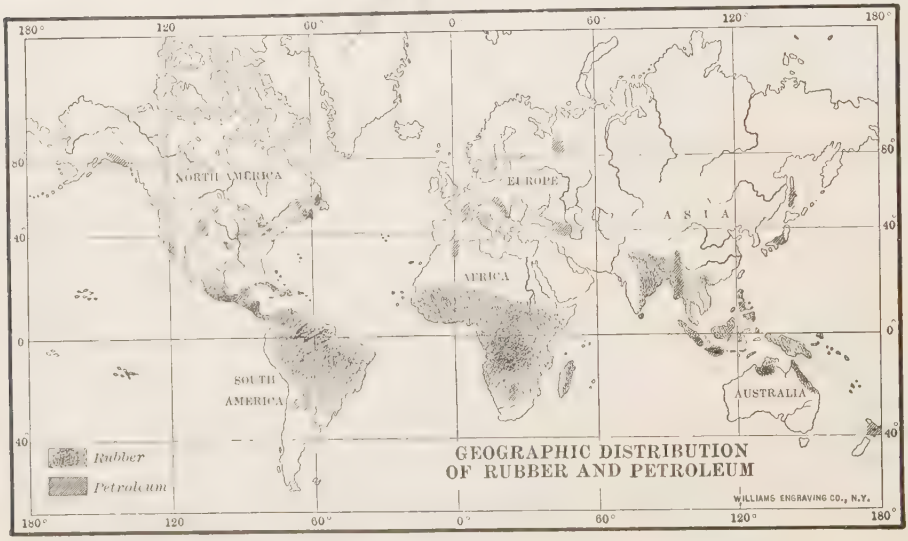


FIG. 539. — The leading petroleum-producing sections of the world.

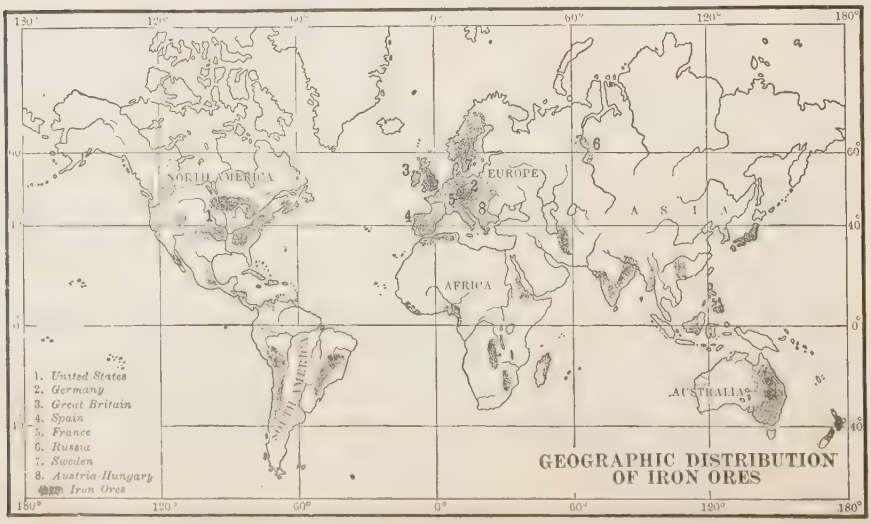


FIG. 540. — Leading sections of the world that produce iron ore.

portant district is in Russia, near the Caspian Sea. Other districts produce little petroleum. What are its uses?

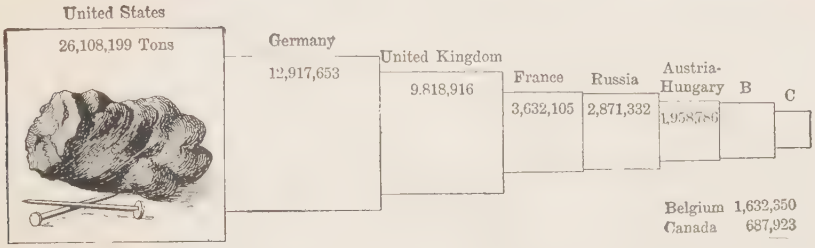


FIG. 541. — The eight leading pig-iron-producing countries (1910).

3. Iron ore and pig iron

Is *iron ore* more or less widely distributed than coal (Figs. 540; 537)? How does the United States rank in the output of this mineral (Fig. 541)? How does the output of coal and iron correspond to the importance of countries as manufacturing nations (Fig. 547)?

Tell about the distribution of *gold* (Fig. 542), and give our rank in the production of that metal (Fig. 543).

4. The precious metals

Where are the principal *silver*-mining sections (Fig. 544)? How does the United States compare with other coun-

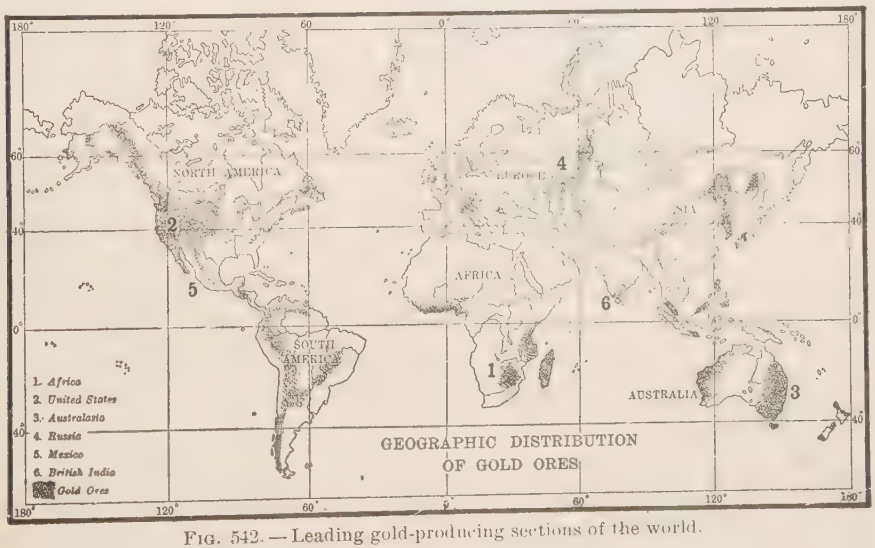


FIG. 542. — Leading gold-producing sections of the world.

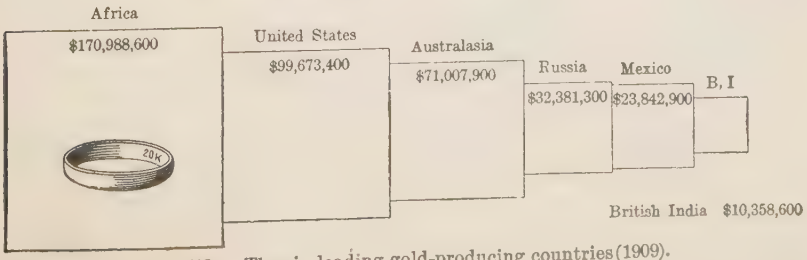


FIG. 543. — The six leading gold-producing countries (1909).

tries in this product (Fig. 545)? Notice to what extent the world is indebted to the New World for silver. How does the value of the total silver production compare with that of gold in the six leading regions for each?

FIG. 544. — Leading silver-producing sections of the world.

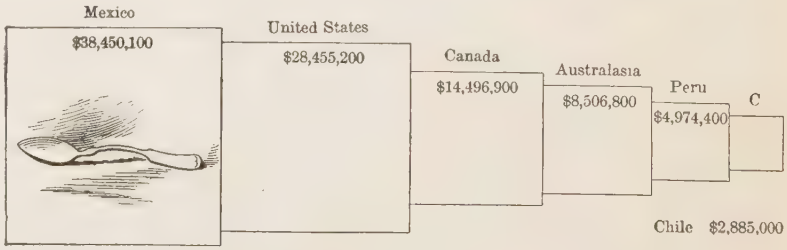


FIG. 545. — The six leading silver-producing countries (1910).

5. Other mineral products

The United States produces great quantities of other minerals. Name some of them (pp. 22, 60, 61, 88, 89). In the production of some, such as copper, and natural gas, our country also leads.

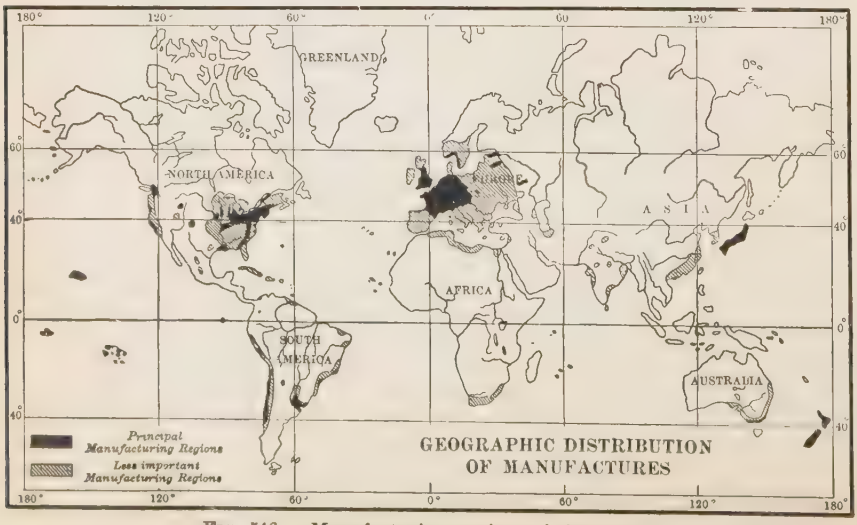


FIG. 546. — Manufacturing sections of the world.

Manufacturing

According to Figure 546, what two continents lead in *manufacturing?* What other, smaller sections are active in this industry? Taking into account the size of our country, the abundance of our raw materials, and the energy and

intelligence of our people, it is not surprising that we surpass all other countries in such work (Fig. 547). State the rank of other leading nations in this occupation.

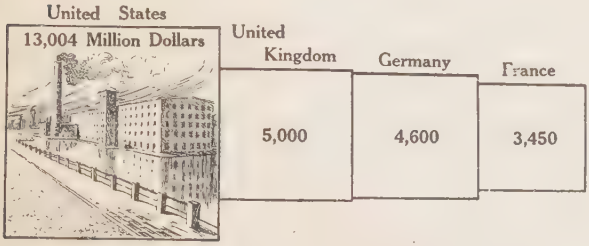


FIG. 547. — The four leading manufacturing countries.

Into what articles is corn manufactured in the United States (p. 78)? Answer the same question about wheat (p. 89). What are the leading centers for the preparation of meats in the United States (pp. 93, 99)? What countries in South America are extensively engaged in this industry (pp. 216 and 217)?

In what parts of the United States is most cotton manufacturing carried on (pp. 31, 61)? Why there? What other countries have much cotton manufacturing? What countries of the world are noted for the manufacture of pig iron and other iron and steel goods? Name great centers for this industry in our own country; in foreign countries.

Commerce

1. Conveniences for transportation

In provisions for transportation by rail, also, the United States takes the leading place. It has a far greater number of miles of railway than any other nation (Fig. 548); but several small European nations have a greater number of miles in proportion to their area.

The United States ranks second in provisions for *transportation by water* (Fig. 549). State the rank of the six chief countries in total length of *railways*, and in *merchant marine*. Give reasons why the United Kingdom should lead in merchant marine (p. 248). Why should Norway be of importance in this respect (p. 290)?

FIG. 548. — The six countries having greatest length of railways (1907).

We produce many more raw products and manufacture many more goods than we can use. These we send abroad, or *export* to other countries, and for that reason they are called our *exports*. Our ten leading exports, named in order of value, together with the principal countries to which the goods are sent, are shown on p. 388.

2. Our trade with foreign countries.

(1) *Our exports*

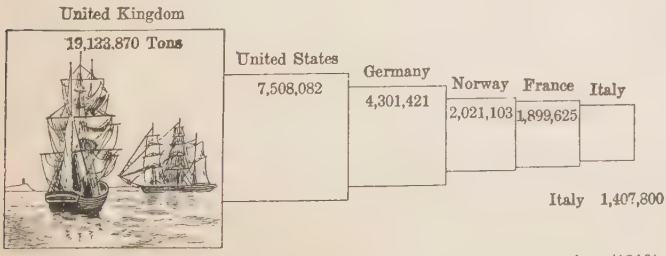


FIG. 549. — The six countries having the largest merchant marine (1910).

Name from memory our principal exports in the order of their value.

While we *sell* an enormous quantity

Table of Chief Exports of the United States

Articles	Value in 1911	Principal Countries to which they are sent
1. Cotton (mainly unmanufactured)	$626,170,787	United Kingdom, Germany, France, Italy.
2. Breadstuffs (wheat, corn, flour, etc.)	107,388,698	United Kingdom, Germany, Belgium, Netherlands.
3. Meat and dairy products	132,671,336	United Kingdom, Germany, Belgium, France.
4. Iron and steel, and manufactures of	230,725,351	Canada, Mexico, Japan, United Kingdom.
5. Mineral oils (crude and refined)	98,115,516	United Kingdom, Germany, China, Netherlands.
6. Copper, and manufactures of	104,908,406	Netherlands, Germany, United Kingdom, France.
7. Wood, and manufactures of	92,255,951	United Kingdom, Canada, Mexico, Argentina.
8. Leather, and manufactures of	55,673,057	United Kingdom, West Indies, Mexico, Canada.
9. Tobacco, and manufactures of	43,638,904	Canada, Mexico, West Indies.
10. Coal	45,013,436	United Kingdom, Italy, Germany, France.
Total value of exports (merchandise)	$1,536,561,442	

of goods to other countries, we must also *buy* many other things. One of these is coffee, as shown in Figure 528; we produce far less sugar each year than we consume; we depend wholly on foreign nations for raw silk; our tea comes almost entirely from abroad (Fig. 530); and while much rice is produced in our Southern States, a large amount must be purchased. These goods, and many others, have to be brought to our shores, or *imported*, from other countries, and for that reason they are called our *imports*.

(2) *Our imports*

Our ten leading imports, named in order of value, together with the principal countries from which they come, are as follows: —

Table of Chief Imports of the United States

Articles	Value in 1911	Some of the Principal Countries from which they come
1. Silk, and manufactures of	$106,824,058	Japan, France, Italy, China.
2. Fibers, and manufactures of	85,578,249	Mexico, East Indies, Philippines.
3. Sugar	96,691,096	Cuba, East Indies, Germany (beet sugar).
4. Chemicals, drugs, and dyes	95,101,006	Germany, United Kingdom, France.
5. Cotton, and manufactures of	91,772,871	United Kingdom, Germany, France, Switzerland.
6. Coffee	90,567,788	Brazil, Cent. America, Venezuela, Colombia, Mexico.
7. Hides and skins	70,504,980	East Indies, United Kingdom, Russia, Argentina, Mexico.
8. Wood, and manufactures of	52,931,803	Canada, Sweden, Germany.
9. Wool, and manufactures of	41,797,796	United Kingdom, Australia, France, Germany.
10. India rubber and gutta-percha	92,910,513	Brazil, Mexico.
Total value of imports (merchandise)	$824,620,160	

Compare the value and nature of our exports and imports. How is the result encouraging in comparison with the statistics of other countries?

The Ten Leading Countries with which we Trade

Countries		Value for Year ended June 30, 1911	Some of the Principal Exports and Imports
1. United Kingdom	Exports	$576,613,974	Cotton, breadstuffs, meat and dairy products, mineral oil.
	Imports	261,289,106	Cotton goods, wool and woolen goods, tin, manufactured fibers.
	Total	837,903,080	
2. Germany	Exports	287,495,814	Cotton, breadstuffs, meat and dairy products, copper, mineral oils.
	Imports	163,242,560	Chemicals and drugs, beet sugar, toys, cotton goods, paper, silk goods.
	Total	450,738,374	
3. Canada	Exports	269,806,013	Iron manufactures, coal, cotton goods.
	Imports	100,863,418	Lumber, wood pulp, fish, copper, hides.
	Total	270,669,431	

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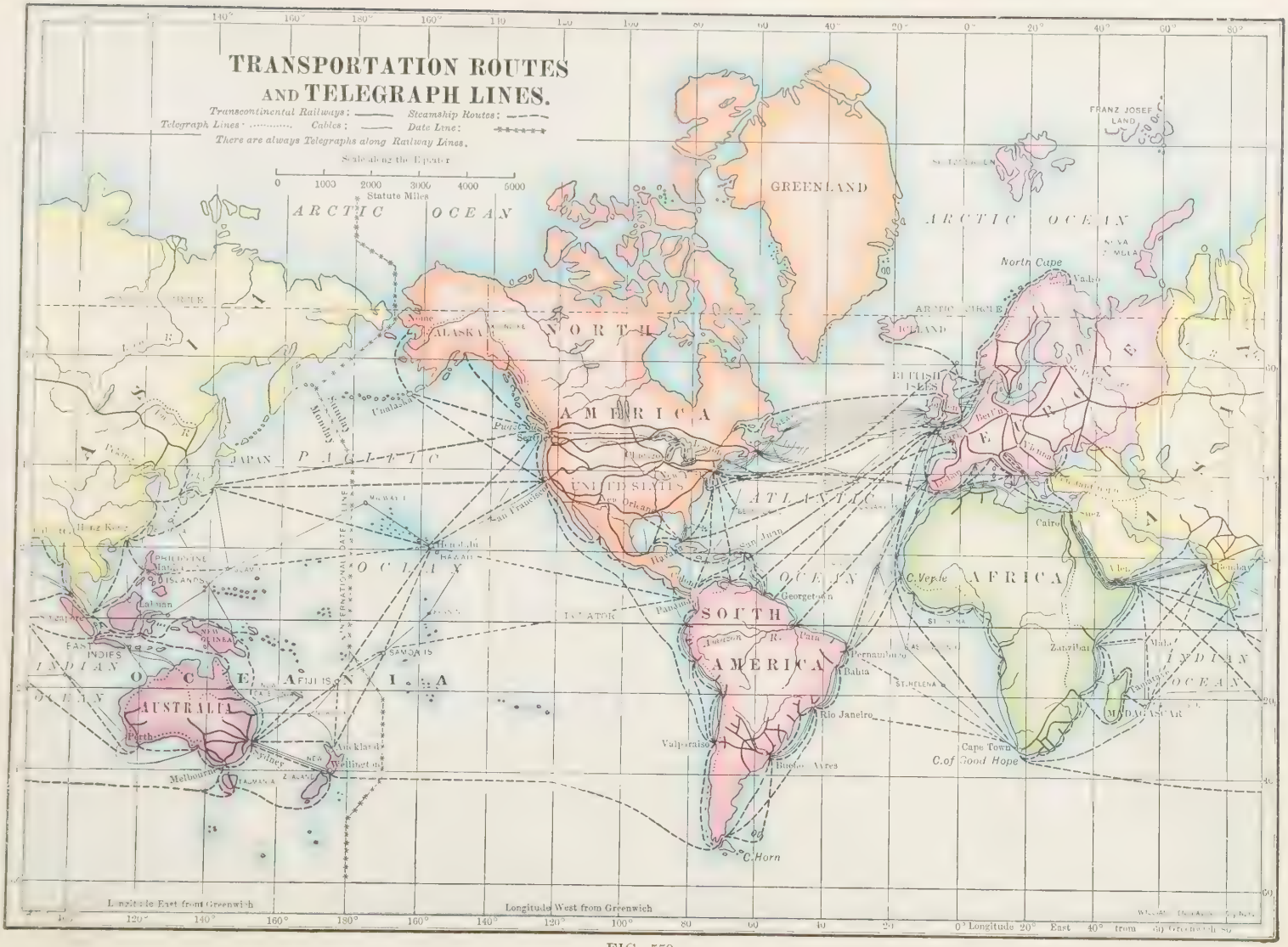

TRANSPORTATION ROUTES
AND TELEGRAPH LINES.
Transcontinental Railways:
Steamship Routes:
Telegraph Lines:
Cables:
Date Line:
There are always Telegraphs along Railway Lines.
Scale along the Equator
0 1000 2000 3000 4000 5000
Statute Miles
ARCTIC OCEAN
GREENLAND
FRANZ JOSEF LAND
North Cape
Vadso
ICELAND
BRITISH ISLES
ALASKA
NORTH AMERICA
UNITED STATES
Seattle
Nome
Unalaska
Sunday
Monday
JAPAN
PACIFIC OCEAN
ATLANTIC OCEAN
San Francisco
New Orleans
Havana
San Juan
Georgetown
Pernambuco
Bahia
Rio Janeiro
Buenos Ayres
Valparaiso
C. Horn
SOUTH AMERICA
Amazon R.
Para
Panama
Colon
Honolulu
HAWAII
MILWAUKEE
INTERNATIONAL DATE LINE
EQUATOR
PHILIPPINE ISLANDS
Manila
Labuan
EAST INDIES
NEW GUINEA
SAMOA IS
FIJI IS
INDIAN OCEAN
AUSTRALIA
Perth
Sydney
Melbourne
TASMANIA
Auckland
Wellington
NEW ZEALAND
C. Verde
AFRICA
Cairo
Suez
Aden
Bombay
Zanzibar
Mala
Tamatave
MADAGASCAR
Cape Town
C. of Good Hope
ST. HELENA
Longitude East from Greenwich
Longitude West from Greenwich
0° Longitude 20° East 40° from Greenwich

FIG. 550.

THE TEN LEADING COUNTRIES WITH WHICH WE TRADE — Continued

Countries		Value for Year ended June, 1911	Kinds of Goods
4 France	Exports	135,271,648	Cotton, copper, mineral oils, tobacco.
	Imports	115,414,784	Silk goods, woolen goods, cotton goods, wines.
	Total	250,686,432	
5. Cuba	Exports	60,709,062	Breadstuffs, machinery, cotton goods, leather goods, meat and dairy products.
	Imports	110,309,468	Sugar, tobacco, iron ore, fruits.
	Total	171,018,530	
6. Netherlands	Exports	96,103,376	Breadstuffs, meat and dairy products, copper, mineral oils.
	Imports	32,926,492	Tobacco, diamonds.
	Total	129,029,868	
7. Brazil	Exports	27,240,146	Machinery, breadstuffs, mineral oils, scientific instruments.
	Imports	100,867,184	Coffee, rubber, cocoa, hides.
	Total	128,107,330	
8. Mexico	Exports	61,281,715	Iron goods, leather goods, coal.
	Imports	57,450,111	Fibers, copper, lead ore, coffee, hides.
	Total	118,731,826	
9. Japan	Exports	36,721,409	Cotton, machinery, mineral oils, breadstuffs.
	Imports	78,527,496	Silk, tea, rice.
	Total	115,248,905	
10. Italy	Exports	60,580,766	Cotton, tobacco, breadstuffs.
	Imports	47,334,809	Silk, fruits, olive oil.
	Total	107,915,575	

More than one third of all our foreign trade is, as you can see, with the British Isles.

(3) Principal transportation routes on the oceans

Figure 550 shows the main ocean routes followed by vessels engaged in the commerce between nations. Note which are the most important. What countries do they connect? Trace other routes across the Atlantic, and tell what countries they connect. Name, if you can, some goods that are carried by each route. Do the same for the Pacific.

(4) The dependence of nations upon one another

Our many exports and imports show how dependent we are upon other countries. We are wonderfully favored in the abundance of our resources. Yet it would be of no use to produce so many things, if foreign countries did not buy some of them.

Again, although we have so many products, there are still many things that we need from other lands. It is true that we probably could depend upon ourselves for all that we want better than any other nation. The English, for instance, would starve within a few weeks, if they imported no food there. Yet note the amount of our imports. How do they compare, in value, with our exports? Thus, in spite of our great resources, we are very dependent upon other countries.

Owing to our trade relations with the United Kingdom, what hardships would probably be brought upon the British, if they entered upon a war with us? How might the Germans suffer, if they were at war with us? How might the French suffer? On the other hand, what hardships would come to us in each case?

Wealth of nations

All the preceding facts prepare us for Figure 551, which shows that the United States is the *wealthiest nation* on the face of the earth. Compare our wealth with that of other leading countries.

Reasons why we promise great progress in the future

1 and 2. Our youthfulness and abundance of room

The figures and diagrams that you have studied show that several European countries compete with the United States in the *world's trade.* Give examples.

So far as the future is concerned, however, several important facts are in our favor. In the

first place, we are still in our youth as a people, while some of the leading nations of Europe have perhaps reached the height of their power. In the second place, the territory of most of those countries is densely settled, as shown in Figure 521. Note the number of inhabitants to a square mile in Belgium, in Germany, and in France. When we contrast with these figures our average of only twenty-five persons per square mile, our possible future growth seems almost without limit. Immense tracts of land, that in Europe would be carefully tilled, in our country are not even cleared for pasture. In no large section of the United States do we approach the careful tillage of the soil that is common in Belgium and some other European countries.

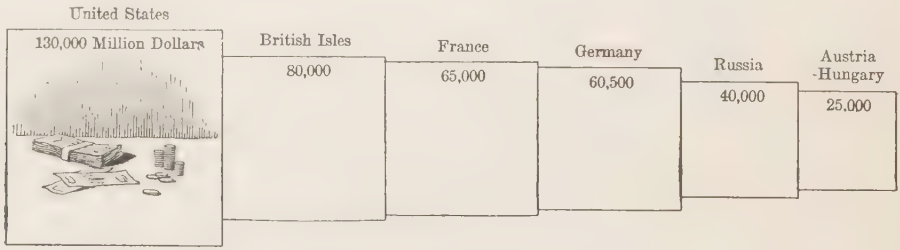


FIG. 551. -- The six wealthiest nations in the world.

3. Our variety of climate and surface features

The varied climate and surface features of our vast country are also favorable to us; for they make a variety of products possible. Almost all farm products can easily be raised in the United States, and our wonderful mineral resources are, so far as we know, not equaled on any continent. It will therefore be seen that our natural resources, which have been so important in giving us our present position, promise equally well for the future.

4. The character of our people

The character of our people is another thing that must be considered in reckoning our future promise. The condition of China shows that resources alone will not make an energetic people and a great nation; for, in spite of the fact that the Chinese have been greatly favored in their resources, they have made very little use of them. Indeed, their customs have prevented progress (p. 327).

Our population has been made up, in large part, of those who had energy and ambition enough to migrate to a new land in the hope of bettering their condition. In their new home the opportunities have been so great, that they have been encouraged to work and to improve themselves. Conditions in the desert have produced the nomad, and the ease of life in the tropical forest, the shiftless savage. But the conditions in the United States have produced a people noted for its energy and enterprise. This result has been possible, however, largely because our nation is a mixture of peoples already gifted.

5 and 6. Our care for education, and our government

The statement of reasons for expecting great future progress in the United States would not be complete, if left here. There are two other factors of great importance; namely, education and government. Where

people are ignorant, and where rulers subject them to bad laws and heavy taxes, there is little chance of progress. It is those European countries in which there are the best opportunities for education and the greatest freedom, that have made the greatest advance.

No nation in the world pays more attention to education or guarantees its people a more active part in their government than the United States. These facts, even as much as the resources and the character of the people, help to explain our astonishing progress in the past, and to give reason for hope in the future.

Need of conserving our resources

Of one thing, however, there is need of greater care. Hitherto we have had such an abundance of resources that we have used them freely, and often carelessly. Thus, we have destroyed many of our forests; there has been much waste of coal and other minerals; and in many places the soil has been allowed to become unproductive. There is need of laws to prevent this, for a nation should not waste its resources any more than an individual. We have plenty for the future, but we should conserve it far more carefully in the future than in the past, else we shall exhaust even the vast resources of our country.

APPENDIX I

LATITUDE, LONGITUDE, AND STANDARD TIME[1]

1. Latitude and Longitude

In a study of geography, it is often necessary to locate places exactly. This is not so easy as it might seem. For instance, suppose we wish to state where London is situated; how would it be done? By taking a long time, it would be possible to describe the general location of this city; but some more accurate way must be found.

Need of some way of locating places exactly

The difficulty is much the same as that which arises in locating a place in a large city, where there are thousands of houses. No one person knows who lives in most of them, and if a stranger were looking for a friend, he might have much trouble in finding his house.

How houses are located in cities

A very simple means has been found for locating city houses. For example, a street running east and west may be selected to divide the city into two parts, as Washington Avenue does in Figure 552. Any place north of this street is spoken of as being on the *north side*; any place south of it as being on the *south side*. The streets north of this central street are numbered as North 1st, North 2d, North 3d, etc.; those to the south of it as South 1st, South 2d, South 3d, and so on. Then if a man says that he lives on North 4th Street, we know at once that he lives on the north side, and that his house is on the fourth street from this central one.

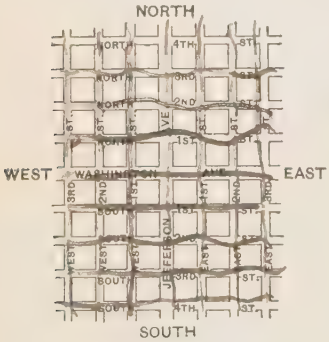


Fig. 552.—Map of a part of a city, to illustrate the need of naming streets.

But we need also to know on what *part* of North 4th Street this house is to be found. To answer that question, another street running north and south, and crossing the east and west ones, may be selected to divide the city into east and west parts. In Figure 552, Jefferson Avenue is such a street. The streets on the two sides of it are numbered as East 1st, East 2d, West 1st, West 2d, etc.

Then if a man lives on the corner of North 4th and East 3d streets, we know not only that his home is *north* of a certain line, but *east* of a certain other line. If the *blocks*, as the spaces between two streets are called, are always of the same length, it will be easy to tell the distance from each of the central streets to the house. Thus the house can be located *exactly*.

Such a plan is not necessary in small towns and villages, because the people there know one another, and are able to direct strangers easily. Few, if any, cities follow *exactly* the scheme here given; but many have plans somewhat similar to this. If you live in a city, you can tell just how houses are located there.

How places can be exactly located on the earth

Places upon the earth are located in much the same manner as in the city just described. The *equator*, which extends around the earth midway between the poles, corresponds to the dividing street (Washington Avenue) that runs east and west. The distance between the equator and the poles, on either side, is divided

[1] The topics in Appendix I and II do not form a necessary part of the subject as presented in this book; and they are topics of some difficulty. Yet some teachers will doubtless wish to introduce one or all of them in their classes at some stage in the study of Geography, and they are therefore included in Appendixes for the use of such classes.

into ninety parts (Fig. 553), corresponding, we might say, to the blocks in a city. The earth is so large, however, that these "blocks," or parts, are very much larger, each being about sixty-nine miles wide. That distance is called a *degree*, and the sign for degrees is a little circle (°) placed at the right of a figure. (For example, 60° means 60 degrees.)

1. How they can be located in a north and south direction

FIG. 553. — The globe, showing the two hemispheres and some of the circles of latitude.

Lines are drawn upon maps and globes to represent these degrees. The lines on a globe extend completely around it from east to west, and are therefore circles. The first circle north of the equator, marked 1°, is about sixty-nine miles from that dividing line; the one marked 2° is twice the distance, and so on. The north pole is 90° from the equator. The same plan is followed south of the equator; and the south pole is also 90° from the equator. Thus the distance from pole to pole is 180°.

All points on any one of these circles are equal distances from the equator, and from each of the other circles. That is, the circles are parallel with one another; and on that account they are called *parallels*.

If one finds that a certain place is on the 8th or the 50th, or some other circle north of the equator, he knows how many miles it is north of that dividing line; for every degree is about 69 miles. San Francisco, for example, is close to the 38th parallel; Chicago is close to the 42d; and St. Paul is on the 45th (Figs. 101 and 138). Knowing this, it is easy to see that Chicago is 4°, or about 276 miles, farther north than San Francisco. It is also easy to see that St. Paul is 3°, or over 200 miles farther north than Chicago.

Thus, by the help of the parallel lines one can find how far any place is north or south of the equator. Instead, however, of saying that places are so many degrees *north or south of the equator*, we usually say that they are in so many degrees *north or south latitude*. San Francisco, for instance, is near 38° *north latitude* (abbreviated *N. Lat.*). Both forms of statement are correct, but the latter is the shorter. *Latitude is nothing more than distance north or south of the equator, measured in degrees;* and the parallel lines are called *parallels of latitude*.

Of course there are no marks *upon the earth* to show where these circles run. They are drawn *on maps*, where they are of great use because they help to locate places.

Small maps and globes cannot well show the entire ninety parallels on each side of the equator. That would make too many lines. For this reason, only every fifth or tenth parallel is usually put on such maps. Examine some maps (such as Figs. 2, 6, 13, 327, and 444), to see which ones are given. Near what parallel do you live?

As in the city, some means must also be found for locating places east and west; for two points might be in 10° north latitude and still be several thousand miles apart. Show that this is so.

2. How places can be located in an east and west direction

Imaginary lines are used for this purpose, as before; but this time they extend around the earth from pole to pole (Fig. 554). These lines, extending through both poles, are called *meridians*.

In a city it makes little difference what north and south street is chosen from which to number the others. It is necessary only that a certain one be *agreed upon*. The same is true of these meridians. No one is especially important, as is the equator among the parallels, and any one of them *might* be chosen to start from. Indeed, different nations have selected different circles from which to begin numbering. In France the meridian extending through Paris is chosen; in England that through Greenwich, near London; and in America the one passing through Washington is sometimes used.

It is, however, important that all people agree on some one meridian to start from, so that all maps may be made alike. On that account, many countries begin their numbering with the meridian which passes through Greenwich. The maps in this book follow that plan.

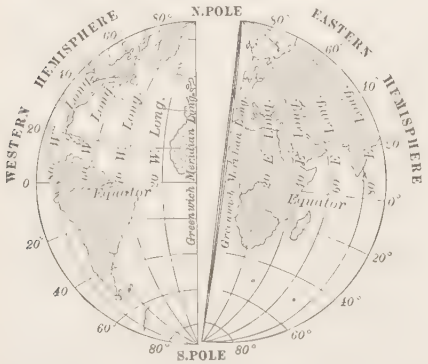


FIG. 554.—The earth, cut in halves along the Greenwich meridian, showing some of the meridians. The meridian 20° is usually considered the dividing line between the eastern and western hemispheres because it lies out in the Atlantic Ocean.

It is necessary in locating places on the earth to study the movements of the sun and the stars; and this is done in a building called an *observatory*, in which there are telescopes and other instruments. Since there is such an observatory at Greenwich, this seemed to the English people to be a fitting place from which to begin numbering the meridians.

Commencing with the meridian of Greenwich, we measure off degrees both east and west of it. On maps and globes these distances are represented by circles extending completely around the earth, through both poles. Thus there is a meridian 1° west, another 2°, a third 3°, etc. Going eastward, the meridians are numbered 1°, 2°, 3°, etc., in the same way. Any place on the 3d meridian *west* of Greenwich is 3° *west* of the principal meridian; if on the 60th meridian, it is 60° west.

Again, however, instead of saying that a place is so many degrees *east or west of the principal meridian*, we say it is in so many degrees *east or west longitude*. This is merely the shorter way of saying it. The place on the third meridian, just mentioned, is, therefore, in 3° west longitude, and the other place is in 60° west longitude. *Longitude is nothing more than distance east or west of the principal meridian, measured in degrees.*[1] The circles that form the meridians are also known as *circles of longitude*.

Any place on the 20th meridian *east* of Greenwich is 20° *east longitude* (*E. Long.*). New York is in 74° W. Long., while San Francisco is in about 123° W. Long. What meridian passes near Chicago? Denver?

The distance around the earth from north to south, through both poles, is four times 90°, or 360° in all. The equator is likewise divided into 360 parts, or degrees. There are therefore 360 meridians, if they are drawn one degree apart. They are numbered up to 180° in both directions (Fig. 555). Thus, 180° E. Long. is the same as 180° W. Long.

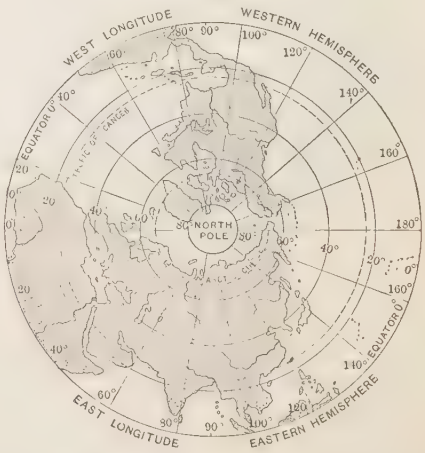


FIG. 555.—A view looking down on the north pole, to show how the meridians come to a point at the north pole. Notice that if the 0° meridian were continued, it would unite with the meridian 180°.

The meridians are not parallel, like the circles of latitude. They are farthest apart at the equator, where the width of a degree of longitude is about 69 miles. But all the meridians come together at the poles, as you can see on a globe or on Figure 555. Therefore the width of a degree of longitude becomes smaller toward the poles.

Knowing the latitude and longitude of any place, it may, by the aid of a map, be as easily located as a house in a great city. For in-

[1] The ancients thought that the world extended farther in an east and west direction than in a north and south direction. Therefore they called the east and west, or *long* direction, *longitude*; the north and south direction, latitude (*latus* = broad).

stance, Denver is about 40° N. Lat. and 105° W. Long. It is therefore far to the north and west of New Orleans, which is about 30° N. Lat., and 90° W. Long. Find the latitude and the longitude of some of the large cities on the map (Fig. 6). Notice also that only every fifth meridian is marked on this map. Compare this with the map of the Northeastern States (Fig. 13). Since the latter map represents a smaller section, more meridians can be drawn upon it.

2. Standard Time

If you were to travel from New York to San Francisco, you would find on arriving there that your watch was three hours too fast. The reason is that the rotation of the earth is from west to east. This causes the sun's rays to fall upon the Atlantic coast more than three hours sooner than upon the Pacific coast. Hence, when it is noon in New York, it is only about nine o'clock in the morning at San Francisco. The time steadily changes in going either east or west, so that no two places on an east-west line have exactly the same time by the sun.

The differences in time between places

Formerly every city used its own suntime, or *local time.* This was a source of great trouble to travelers; for their watches were always wrong when they arrived at new places. When railroads were built, and people began to travel more, and to go longer distances, the many different kinds of local time became even a greater inconvenience.

The trouble caused by such differences

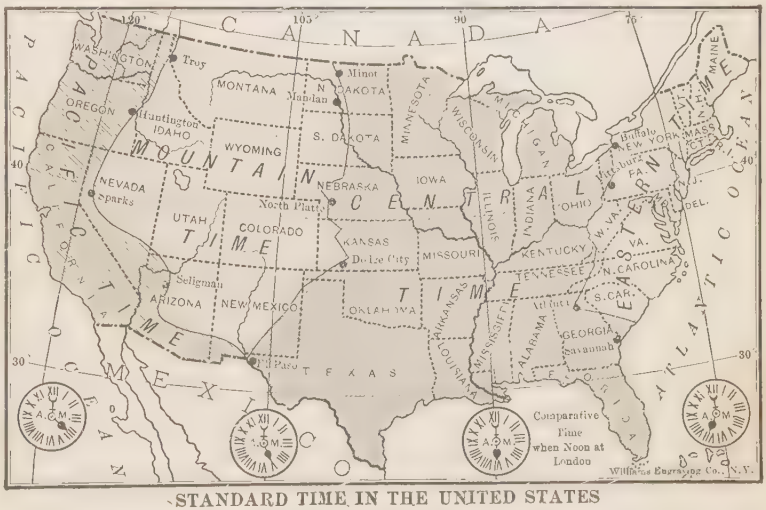
In order to avoid this trouble, our continent has been divided into belts, in each of which the railways, and most of the towns, have agreed to use the same time. Since this time is the *standard for all,* these belts are called the *Standard Time Belts.* The one in the extreme East, including eastern Canada, is called the *Colonial Belt;* the belt next west of this, which includes New England, New York, and some of the other Eastern States, is called the *Eastern Time Belt.* What are the others called (Fig. 556)?

How this trouble is now largely avoided

In traveling across the country from New York City to San Francisco, one starts with his watch set at the standard time for the Eastern Time Belt. After a while he comes to a place where the time is changed one full hour; then he sets his watch back an hour so as to have the Central Time. Going still farther west to the Mountain Belt, the watch is again set back one full hour. What is done when the Pacific Belt is reached? By this arrangement, the same time is used over a very broad belt, and only a few changes of the watch have to be made. State how a watch would have to be changed when one goes *eastward* from San Francisco to New York.

Our study of longitude helps us to understand what determines the places for changing this time. The earth makes one complete rotation every 24 hours, so that the sun passes over 360 degrees in the course of the day of 24 hours. Dividing 360 by 24 gives 15; that is, the number of meridians, one degree apart, that the sun passes over in a single hour. Therefore, when it is noon in a place on the 75th meridian, as at Philadelphia (Fig. 556), it is

How the time for each time belt is fixed



STANDARD TIME IN THE UNITED STATES

Fig. 556.—To show the Standard Time Belts of the United States.

eleven o'clock just 15° west of this, or on the 90th meridian. When it is noon at one point on a meridian, it is noon at other points on that meridian.

This explains what has determined the boundary lines of the time belts. The time selected for the Eastern Belt is that of the 75th meridian; for the Central Belt, that of the 90th meridian, which is just one hour later. What meridian is selected for the Mountain Belt (Fig. 556)? For the Pacific Belt?

Each of these meridians runs through the *middle* of the belt whose time it fixes. Thus, the eastern boundary of the Central Time Belt is halfway between the 75th and 90th meridians, that is, 82½° W. Long.; and the western boundary is halfway between the 90th and 105th meridians, or 97½° W. Long.

Why the boundaries for these time belts are not regular

As a matter of fact, the railways do not change their time exactly on these meridians. It often happens that the meridians chosen for boundaries pass through very unimportant points, or even cross the railways far out in the open country. Instead of following the exact boundaries, therefore, the railways often select well-known cities as the places where the changes shall be made. For instance, Buffalo, Pittsburg, and Atlanta are the principal cities along the boundary between the Eastern and the Central time belts. Railway time-tables show a change of one hour at these points; and passengers going east or west change their watches one hour here (Fig. 556). Name cities that are located on other boundaries. Thus it happens that the boundaries where the railways *actually* change their time are somewhat irregular. But that makes little difference, so long as there is a general agreement as to the location of the boundaries.

It is true that the Standard Time is incorrect for most places. It is the sun that really fixes our time, and at most points Standard Time cannot agree with the sun, or *local time*. Yet Standard Time relieves us of much trouble, and that is the chief reason for its use.

In order that our system may agree with that of other parts of the world, the time of the Greenwich meridian is taken as a basis. Thus the whole world may be divided into Standard Time belts, with a change of an hour at every fifteenth meridian.

Review Questions

1. Explain the need of some way of locating places exactly. 2. How may houses be located in large cities? 3. How can all places be located in a north and south direction on the earth? 4. How in an east and west direction? 5. Locate several places accurately by using a map. 6. Define latitude; longitude. 7. What is meant by a degree? 8. How many degrees of longitude are there on the equator? 9. How many miles is each of these degrees? 10. Why are meridians not parallel? 11. How many degrees of latitude are therefrom pole to pole? 12. Explain about the differences in time by the sun, in different places. 13. How have these differences caused much trouble? 14. How is the difficulty now largely avoided? 15. Explain how the time for each time belt is determined. 16. Name the time belts in North America, and locate each. 17. Why are the boundaries not regular?

Suggestions

1. Find how the streets of Washington have been numbered and lettered. 2. What is the latitude and longitude of Boston? Of Washington? Of Chicago? Of your home? 3. Find some cities that are on or near the 42d parallel of latitude. 4. What place is in 25° N. Lat. and 81° W. Long.? What place is near 40° N. Lat. and 75° W. Long.? 5. Find places that have nearly the same latitude as your home. 6. Show on a globe or map, where a ship would be in the Atlantic, when in zero latitude and zero longitude. 7. Examine a globe to see what meridian is a continuation of zero longitude on the other side of the earth. 8. Find the latitude of the Tropic of Cancer; of the Tropic of Capricorn; of the Arctic Circle; of the Antarctic Circle. 9. Where and how much would you change your watch in traveling from San Francisco to Chicago? 10. Examine some railway time-tables to see how they indicate the changes in time. 11. What is the difference, where you live, between Standard time and solar, or sun, time. 12. Find out whether the true Standard Time is telegraphed to your city each day, and if so from what place?

APPENDIX II

REVOLUTION OF THE EARTH, AND ITS EFFECTS

You have already learned that the earth is rapidly rotating on its axis. It has another motion that is also very important. This is its motion, or *revolution*, around the sun, which is illustrated in Figure 557. The object shown in the center of the circle is the sun, and the circle itself shows the course that the earth takes in its revolution.

The yearly motion of the earth

At the same time that the earth is whirling on its axis, it is also swinging around the sun, although the sun is ninety-three million miles from it. It takes a year to complete one revolution. Indeed, the time necessary for this great journey is what fixes the length of our year. The path that the earth takes in this journey is called its *orbit*.

In its revolution, the earth is moving at the rate of more than one and a half million miles a day. What fearful speed! And this, too, while it is whirling, or rotating, on its axis! One might ask, "With such rapid motion, why are we not swept from the earth by the wind?" The answer is that the air, as well as everything else upon the earth, is drawn toward the earth and held in place by the force called *gravity*. It is on account of this force that everything on the earth turns with it in the daily rotation, and swings around with it in its annual revolution.

Importance of the force called gravity and gravitation

Again, if the earth is revolving at such speed, why does it not fly away into space? As a stone swinging round at the end of a string flies off when the string breaks, so it might seem that the earth would fly off into space; for there *appears* to be nothing holding it to the sun.

As a matter of fact there *is* something holding it. It is not a string, nor a rope, to be sure, but something far stronger. The sun is very much larger than the earth; in fact, it is over a million times as large. It attracts the earth, and holds it in place, in much the same way as the force of gravity attracts men and houses to the earth. This *attraction of gravitation*, which the sun exerts upon the earth, is what prevents our sphere from flying off into space; it holds the earth as firmly as the string holds the stone.

The revolution of the earth is what causes our seasons and the changing length of our day and night.

Effects of the earth's revolution

In Figure 557 the lowest sphere, bearing the date September 23, represents the earth as receiving the light of the sun from pole to pole. On that date day and night are equal everywhere upon the earth. It marks the end of summer and the beginning of our autumn.

Following the earth in its revolution (to the right), you will see that, as the months pass, the north pole falls farther and farther into the shadow, until the farthest point is reached on December 21. That is the date for our shortest day and longest night. Farther north nights are longer still, and the [illegible] live within the Arctic Circle, are having [illegible] that lasts week after week. It is upon th[illegible]e that our winter begins.

After December 21, the Arctic region gradually comes into the light once more, until, on March 21, the sun's light again reaches from pole to pole. Day and night are once more equal all over the earth, and warmer weather returns. That date marks the beginning of our spring. Going farther, on June 21, the north pole is shown to be just as far within the light as it was within the shadow on December 21. This is the date for our longest day and shortest night. Farther north, the days are longer still, and within the Arctic Circle the day lasts week

after week. It is upon this day, also, that our summer begins.[1]

After this date, until September 23, the revolution of the earth gradually brings the north pole again toward the shadow. Then, on September 23, the light of the sun once more reaches from pole to pole, so that day and night are again equal, and a year is completed.

Changes of the same kind are also in progress in the southern hemisphere; but the seasons are exactly changed around. That is, it is winter there when it is summer with us; and when the north pole is in darkness, the south pole is bathed in the sunlight.

Figure 558 shows the zones on the earth.

Cause of the zones, and their boundaries

How many are there? Name and locate each. The cause of the zones is found in the slant at which the rays of the sun strike the earth. You know that it is warmer in the middle of the day, when the sun is nearly overhead, than late in the afternoon, when it is near the horizon. In the torrid zone the sun's rays at noon come from directly overhead, or nearly that, and it is very warm there. In the temperate zone they strike the earth at a greater slant; and in the frigid zones at a much greater slant still. For this reason, the heat grows less and less, the nearer one approaches either of the poles.

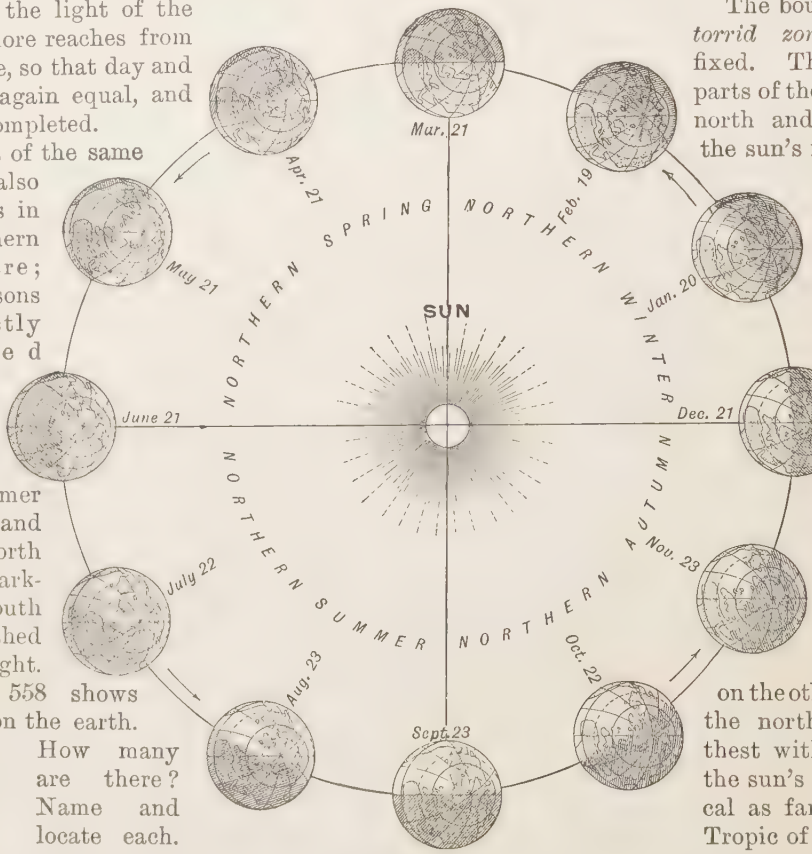


FIG. 557.—To illustrate the revolution of the earth around the sun. The shaded portion represents night. The end of the axis around which the earth rotates is the point where the meridians come together.

The boundaries of the *torrid zone* are easily fixed. They mark the parts of the earth farthest north and south where the sun's rays are found directly overhead, or vertical, at some period of the year. On December 21, when the north pole is farthest within the shadow (Fig. 557), the sun's rays are vertical as far south as the Tropic of Capricorn. On June 21, on the other hand, when the north pole is farthest within the light, the sun's rays are vertical as far north as the Tropic of Cancer.

The *north frigid zone* is the region around the north pole that lies entirely in darkness on December 21. On June 21, this same region lies entirely in the light. The *south frigid zone* is the corresponding region about the south pole.

The two *temperate zones* are merely the wide belts that lie between the torrid zone, on one side, and the frigid zones on the other. One, called the *north temperate zone*, is in the northern hemisphere; the other, called the *south temperate zone*, is in the southern hemisphere.

Name the boundaries of each of the zones. Although it is common to use such boundaries, it must be remembered that a person would find no sharp difference in passing from one zone to the next.

[1] Some teachers may wish to introduce here an explanation of the effects of inclination of the earth's axis, and a more complete study of the seasons. This has not been included in this book because it is felt that, unless the teacher has the necessary apparatus, a mere study from the text is too difficult. The authors believe that it is a subject that is better fitted for the high school age.

How the earth's revolution causes our seasons

The seasons are due to the slant at which the sun's rays strike the earth at different times of the year. The rays reach us with the greatest slant in winter, and for that reason this is our coldest season. In summer, on the other hand, the rays are more nearly vertical, and then we have our warmest weather. As the earth revolves around the sun the slant of the sun's rays is steadily changing, and that causes the change from spring to summer, then to autumn and winter.

How the revolution affects our daily lives

The revolution of the earth around the sun is, therefore, a matter of great importance. It causes our seasons by continually changing the slant at which the sun's rays fall upon us. That affects us in a thousand ways. It determines, for instance, the time when our lamps shall be lighted; when crops shall be planted and harvested; and when the navigation of many of our rivers and lakes shall be opened and closed. It even leads to changes in the kind of clothes that we wear, and greatly influences the sports that we enjoy. Name some of its other influences.

Review Questions

1. Describe the yearly motion of the earth. 2. How are gravity and gravitation important forces? 3. State the effects of the earth's revolution on the length of our seasons, and of our days and nights. 4. With the aid of the diagram (Fig. 689) point out the parts of the earth that are lighted by the sun at the four different seasons. 5. At what seasons are the days equal in length? 6. When are the days longest? When are they shortest? 7. What is the case in the southern hemisphere? 8. State the cause of the zones. 9. Of their boundaries. 10. How does the earth's revolution cause our seasons? 11. How does this revolution influence our daily lives?

FIG. 558. — A map of the Zones.

Suggestions

1. Show by a globe, or a ball, how the two movements of the earth, rotation and revolution, can be going on at the same time. 2. Are the days now growing longer or shorter? 3. During which months do they grow longer?

APPENDIX

TABLES OF AREA, POPULATION, ETC.

NOTE.—The figures, 1900, etc., refer to the year in which the Census was taken or the estimate was made. Most of the recent figures are obtained from the United States Census Reports of 1910 or from "The Statesman's Year Book," 1911.

SIZE OF EARTH

Length of Earth's Diameter at the Equator (miles)	7,926	The Earth's Surface (square miles)	196,940,000
Length of Equator (miles)	24,902	Total Area of Ocean (square miles)	141,486,000

CONTINENTS AND PRINCIPAL COUNTRIES, COLONIES, ETC.

	Area in Square Miles	Population
North America, 1910	**8,500,000**	**125,000,000**
Alaska, 1910	599,884	64,356
Antigua, 1901	170	35,073
Bahama Islands, 1909	5,450	61,277
Bermuda Islands, 1901	20	17,535
British Honduras, 1909	8,598	44,156
Canada, 1909	3,603,910	7,185,000
Costa Rica, 1908	18,400	368,780
Cuba, 1910	44,000	2,150,112
Greenland, 1901	46,740	11,893
Guatemala, 1910	48,290	1,992,000
Haiti (Island), 1908	10,204	2,029,700
Honduras, 1905	46,250	500,136
Jamaica, 1910	4,200	862,422
Mexico, 1910	767,005	15,063,207
Newfoundland, 1909	42,734	234,588
Labrador, 1909	120,000	4,026
Nicaragua, 1906	49,200	600,000
Panama, 1909	31,500	419,029
St. Croix, 1901	84	18,401
St. Thomas, 1901	32	11,269
Salvador, 1906	7,225	1,116,253
United States, see p. 402		
South America	**7,400,000**	**49,000,000**
Argentina, 1909	1,135,840	6,805,684
Bolivia, 1908	605,400	2,049,083
Brazil, 1908	3,218,991	21,461,100
Chile, 1908	292,580	3,254,451
Colombia, 1908	435,100	4,303,000
Ecuador, 1889 / Galapagos Islands, 1889	116,000	1,400,000
Falkland Islands, 1909	5,500	2,289
Guiana, British, 1909	90,277	305,090
Guiana, Dutch, 1909	46,060	82,739
Guiana, French, 1906	30,500	89,349
Paraguay, 1905	171,204	631,347
Peru, 1908	695,733	4,500,000
South Georgia Islands	1,000	uninhabited
Tobago, 1901	114	18,750
Trinidad Island, 1901	1,754	255,148
Uruguay, 1909	72,210	1,094,688
Venezuela, 1909	393,976	2,685,606
Europe	**3,600,000**	**439,000,000**
Andorra, 1897	175	5,231
Austria, 1910	115,903	28,567,898
Austria-Hungary, 1910	261,100	51,323,921
Balearic Isles, 1910	1,935	325,703
Belgium, 1909	11,373	7,451,903
British Empire, 1910	11,454,862	397,261,509
British Isles, 1910	121,390	45,469,564
Bulgaria, 1910	38,080	4,284,844
Corsica, 1906	3,367	291,160
Crete, 1900	3,265	310,185
Denmark, 1906	15,582	2,605,268
England, 1901	50,874	31,071,703
England and Wales, 1910	58,324	36,169,150
Faroe Islands, 1906	540	16,849
France, 1909	207,054	39,376,000
German Empire, 1910	208,780	64,903,423
Great Britain, 1910	88,729	41,098,401
Greece, 1907	25,014	2,631,952
Hebrides Islands, 1897	3,000	100,000
Hungary, 1910	125,430	30,463,571
Iceland, 1901	39,756	78,470
Ireland, 1909	32,360	4,374,158
Italy, 1910	110,659	34,269,746
Liechtenstein, 1906	65	9,650
Luxemburg, 1905	1,706	219,210
Malta, 1910	95	215,879
Monaco, 1909	8	19,121
Montenegro, 1909	3,630	250,000
Netherlands, 1909	12,648	5,825,198
Norway, 1910	124,130	2,392,698
Orkney Islands, 1901	376	28,699
Portugal, 1900	35,490	5,423,132
Prussia, 1905	135,134	37,293,324
Roumania, 1908	50,720	6,771,722
Russia, 1909	1,862,524	113,841,000
Russian Empire, 1909	8,647,657	160,095,200
San Marino, 1910	38	10,489
Sardinia, 1910	9,306	340,122
Scotland, 1910	30,405	4,929,251
Servia, 1905	18,650	2,688,025
Shetland Islands, 1901	551	28,166
Sicily, 1910	9,935	3,593,985
Spain, 1910	194,783	19,503,068
Sweden, 1908	172,876	5,429,600
Switzerland, 1908	15,976	3,559,349
Turkey, 1909	65,350	6,130,200
Turkish Empire, 1909	1,565,000	35,414,800
Wales, 1901	7,450	1,455,940
Asia with East Indies	**21,000,000**	**900,000,000**
Aden, 1901	75	41,222
Afghanistan, 1909	250,000	4,550,000
Arabia	1,200,000	4,825,000
Baluchistan, 1901	131,855	915,000
Bhutan, 1909	20,000	250,000

	Area in Square Miles	Population
Bokhara, 1909	88,000	1,250,000
Burma, 1901	236,738	10,490,624
Ceylon, 1909	25,332	4,082,935
China (proper), 1906	1,532,420	407,253,030
Republic of China, 1909	4,277,170	439,214,000
Chinese Turkestan, 1906	550,340	1,200,000
Cyprus, 1910	3,584	261,587
Formosa, 1910	13,458	3,123,471
French India, 1909	196	277,000
French Indo-China, 1906	256,000	16,315,933
India, 1901	1,766,642	294,361,056
Japan, 1910	147,655	50,751,919
Khiva, 1909	24,000	800,000
Korea, 1909	86,000	12,959,981
Manchuria, 1909	363,610	20,000,000
Mongolia, 1906	1,367,600	2,600,000
Nepal, 1909	54,000	5,000,000
Oman, 1909	82,000	500,000
Palestine, 1905	10,000	700,000
Persia, 1909	628,000	9,500,000
Portuguese Indies, 1901	7,330	300,000
Russia in Asia, 1909	6,207,662	24,082,200
Siam, 1909	195,000	6,686,486
Siberia, 1909	4,786,730	7,878,506
Straits Settlements, 1901	1,472	572,249
Sungaria, 1901	147,950	600,000
Tibet, 1909	463,200	6,500,000
Turkey in Asia, 1909	693,610	17,683,500
Africa	**11,000,000**	**125,000,000**
Abyssinia, 1910	432,432	5,000,000
Algeria (Fr.), 1909	343,500	5,231,850
Anglo-Egyptian Sudan, 1909	950,000	2,363,000
Angola, 1909	484,800	4,119,000
Belgian Congo, 1909	909,650	20,000,000
British Somaliland, 1910	68,000	348,000
Canary Islands (Sp.), 1910	2,807	419,809
Cape of Good Hope, 1910	276,995	2,510,000
Cape Verde Islands (Port.), 1909	1,480	147,424
Egypt, 1907	460,000	11,189,978
Eritrea (Italy), 1906	45,800	450,000
French Congo, 1907	669,280	5,000,000
French Somaliland, 1907	5,790	180,000
Gambia (Br.), 1910	3,619	160,000
German East Africa, 1909	384,180	10,000,000
German Southwest Africa, 1909	322,450	120,000
Gold Coast and Protectorate, 1910	119,200	1,500,000
Italian Somaliland, 1909	139,430	400,000
Kamerun (Ger.), 1909	191,130	3,000,000
Liberia, 1909	40,000	1,500,000–2,100,000
Madagascar, 1909	228,000	2,965,508
Madeira Islands, 1900	314	150,574
Mauritius (Br.), 1910	835	379,184
Morocco, 1909	219,000	4,340,000–4,580,000
Natal, 1909	35,371	1,249,034
Nigeria, Northern, 1908	256,400	7,164,751
Nigeria, Southern	77,269	6,500,000
Orange Free State, 1910	50,392	478,815
Portuguese East Africa, 1901	293,400	3,120,000
Portuguese Guinea, 1901	13,940	820,000
Réunion Island (Fr.), 1907	910	201,000
St. Helena (Br.), 1909	47	3,558
Sierra Leone and Protectorate (Br.), 1910	30,000	1,130,000
Spanish Africa, 1910	85,814	235,844
Togo, 1910	33,700	1,000,000
Transvaal, 1910	110,426	1,400,000
Tripoli (Turk.), 1906	398,900	1,000,000
Tunis (Fr.), 1909	45,779	1,500,000
Uganda Protectorate, 1910	223,500	3,500,000
Zanzibar (Br.), 1910	1,020	200,000
Australia, Commonwealth of	**3,000,000**	**4,400,000**
New South Wales, 1910	310,372	1,621,677
Northern Territory, 1910	523,620	3,239
Queensland, 1910	670,500	572,654
South Australia, 1910	380,070	412,808
Tasmania, 1910	26,215	186,860
Victoria, 1909	87,884	1,303,357
Western Australia, 1909	975,920	273,543
East Indies and larger islands of the Pacific	**1,200,000**	**47,000,000**
Borneo, 1905	298,843	1,944,655
Celebes, 1905	71,470	851,905
Fiji Islands, 1910	7,740	133,831
Hawaiian Islands, 1910	6,449	191,909
Java and Madura, 1905	50,554	30,098,008
Molucca Islands, 1905	43,864	407,906
New Caledonia, 1906	7,650	55,886
New Guinea		
British Guinea, 1910	151,789	200,000
Dutch Guinea, 1905	99,540	351,603
German Guinea, 1910	95,160	356,000
New Zealand, 1910	104,751	1,048,347
Philippine Islands, 1910	115,026	8,276,802
Samoa Islands, 1910	1,079	41,140
Solomon Islands (Br.), 1910	12,000	150,310
Solomon Islands (Ger.)	4,200	
Sumatra, 1905	161,612	4,029,503
Total Area of Continents		**56,000,000**
Total Population		**1,700,000,000**

STATES AND TERRITORIES OF THE UNITED STATES

	Area in Square Miles	Population 1900	Population 1910
Alabama	51,998	1,828,697	2,138,093
Alaska	590,884	63,592	64,356
Arizona	113,956	122,931	204,354
Arkansas	53,335	1,311,564	1,574,449
California	158,297	1,485,053	2,377,549
Colorado	103,948	539,700	799,024
Connecticut	4,965	908,420	1,114,756
Delaware	2,370	184,735	202,322
District of Columbia	70	278,718	331,069
Florida	58,666	528,542	752,619
Georgia	59,265	2,216,331	2,609,121
Guam	210	8,561	11,973
Hawaiian Islands	6,449	154,001	191,909
Idaho	84,313	161,772	325,594
Illinois	56,665	4,821,550	5,638,591
Indiana	36,354	2,516,462	2,700,876
Iowa	56,147	2,231,853	2,224,771
Kansas	82,158	1,470,495	1,690,949
Kentucky	40,598	2,147,174	2,289,905
Louisiana	48,506	1,381,625	1,656,388
Maine	33,040	694,466	742,371
Maryland	12,327	1,188,044	1,295,346
Massachusetts	8,266	2,805,346	3,366,416
Michigan	57,980	2,420,982	2,810,173
Minnesota	84,682	1,751,394	2,075,708
Mississippi	46,865	1,551,270	1,797,114
Missouri	69,420	3,106,665	3,293,335
Montana	146,572	243,329	376,053
Nebraska	77,520	1,066,300	1,192,214
Nevada	110,690	42,335	81,875
New Hampshire	9,341	411,588	430,572
New Jersey	8,224	1,883,669	2,537,167
New Mexico	122,634	195,310	327,301
New York	49,204	7,268,894	9,113,614
North Carolina	52,426	1,893,810	2,206,287
North Dakota	70,837	319,146	557,056
Ohio	41,040	4,157,545	4,767,121
Oklahoma	70,057	790,391	1,657,155
Oregon	96,699	413,536	672,765
Pennsylvania	45,126	6,302,115	7,665,111

	Area in Square Miles	Population 1900	Population 1910
Philippine Islands	127,853	7,360,551	8,276,802
Porto Rico	3,606	962,019	1,118,012
Rhode Island	1,248	428,556	542,610
South Carolina	30,989	1,340,316	1,515,400
South Dakota	77,615	401,570	583,888
Tennessee	42,022	2,020,616	2,184,789
Texas	265,896	3,048,710	3,896,542
Tutuila	77	3,800	6,780
Utah	84,990	276,749	373,351
Vermont	9,564	343,641	355,956
Virginia	42,627	1,854,184	2,061,612
Washington	69,127	518,103	1,141,990
West Virginia	24,170	958,800	1,221,119
Wisconsin	56,066	2,069,042	2,333,860
Wyoming	97,914	92,531	145,965
United States, total	**3,624,122**	**77,256,630**	**93,402,151**
United States (without Alaska, Philippine Islands, etc.)	**3,026,789**	**75,994,575**	**91,972,266**

TWENTY-FIVE OF THE LARGEST CITIES IN THE WORLD

		Population
1.	London, England, 1910	4,872,702
	Greater London, 1910	7,537,196
2.	New York, U.S., 1910	4,766,883
3.	Paris, France, 1911	2,846,986
4.	Tokyo, Japan, 1909	2,168,069
5.	Chicago, U.S., 1910	2,185,283
6.	Berlin, Germany, 1910	2,070,695
7.	Vienna, Austria-Hungary, 1911	2,004,291
8.	St. Petersburg, Russia, 1910	1,907,708
9.	Canton, China	1,600,000
10.	Philadelphia, U.S., 1910	1,549,008
11.	Moscow, Russia, 1907	1,359,254
12.	Buenos Aires, Argentina, 1911	1,326,994
13.	Calcutta, India, 1910	1,216,514
14.	Constantinople, Turkey	1,125,000
15.	Osaka, Japan, 1908	1,117,151
16.	Shanghai, China	1,000,000
17.	Tientsin, China, 1910	1,000,000
18.	Rio de Janeiro, Brazil, 1909	1,000,000
19.	Bombay, India, 1910	972,892
20.	Hamburg, Germany, 1910	936,000
21.	Liverpool, England, 1910	767,606
22.	Glasgow, Scotland, 1909	872,021
23.	Warsaw, Russia, 1901	756,426
24.	Budapest, Austria-Hungary, 1901	732,322
25.	Barcelona, Spain, 1911	700,000

TWENTY-FIVE LARGEST CITIES IN THE UNITED STATES

		Population 1900	Population 1910
1.	New York, N.Y.	3,437,202	4,766,883
2.	Chicago, Ill.	1,698,575	2,185,283
3.	Philadelphia, Pa.	1,293,697	1,549,008
4.	St. Louis, Mo.	575,238	687,029
5.	Boston, Mass.	560,892	670,585
6.	Cleveland, Ohio	381,768	560,663
7.	Baltimore, Md.	508,957	558,485
8.	Pittsburgh, Pa.	321,616	533,905
9.	Detroit, Mich.	285,704	465,766
10.	Buffalo, N.Y.	352,387	423,715
11.	San Francisco, Cal.	342,782	416,912
12.	Milwaukee, Wis.	285,315	373,857
13.	Cincinnati, Ohio.	325,902	364,463
14.	Newark, N.J.	246,070	347,469
15.	New Orleans, La.	287,104	339,075
16.	Washington, D.C.	278,718	331,069
17.	Los Angeles, Cal.	102,479	319,198
18.	Minneapolis, Minn.	202,718	301,408
19.	Jersey City, N.J.	206,433	267,779
20.	Kansas City, Mo.	163,752	248,381
21.	Seattle, Wash.	80,671	237,194
22.	Indianapolis, Ind.	169,164	233,650
23.	Providence, R.I.	175,597	224,326
24.	Louisville, Ky.	204,731	223,928
25.	Rochester, N.Y.	162,608	218,146

GROWTH OF THE FIFTEEN LARGEST CITIES OF THE COUNTRY

	City	1800	1830	1890	1900	1910
1.	New York, N.Y.	60,489 (1)	197,112 (1)	2,507,414 (1)	3,437,202 (1)	4,766,883
2.	Chicago, Ill.	—	4,470 (1840)	1,099,850 (2)	1,698,575 (2)	2,185,283
3.	Philadelphia, Pa.	41,220 (2)	80,462 (3)	1,046,964 (3)	1,293,697 (3)	1,549,008
4.	St. Louis, Mo.	10,049 (1820)	14,125 (7)	451,770 (4)	575,238 (4)	687,029
5.	Boston, Mass.	24,937 (4)	61,392 (4)	448,477 (5)	560,892 (5)	670,585
6.	Cleveland, Ohio.	606 (1820)	1,076 (12)	261,353 (9)	381,768 (7)	560,663
7.	Baltimore, Md.	26,514 (3)	80,620 (2)	434,439 (6)	508,957 (6)	558,485
8.	Pittsburgh, Pa.	1,565 (5)	12,568 (8)	238,617 (12)	321,616 (11)	533,905
9.	Detroit, Mich.	1,422 (1820)	2,222 (11)	205,876 (13)	285,704 (13)	465,766
10.	Buffalo, N.Y.	2,095 (1820)	8,668 (10)	255,664 (10)	352,387 (8)	423,715
11.	San Francisco, Cal.	—	—	298,997 (7)	342,782 (9)	416,912
12.	Milwaukee, Wis.	—	1,172 (1840)	204,468 (14)	285,315 (14)	373,857
13.	Cincinnati, Ohio.	2,540 (1810)	24,831 (6)	296,908 (8)	325,902 (10)	364,463
14.	Newark, N.J.	8,008 (1810)	10,953 (9)	181,830 (15)	246,070 (15)	347,469
15.	New Orleans, La.	17,242 (1810)	29,737 (5)	242,039 (11)	287,104 (12)	339,075

CITIES OF THE UNITED STATES WITH 25,000 OR MORE INHABITANTS IN 1910; AND A FEW OTHERS, MOSTLY MENTIONED IN THE BOOK

	Population, 1900	Population, 1910
Akron, Ohio	42,728	69,067
Albany, N.Y.	94,151	100,253
Albuquerque, N.M.	6,238	11,020
Allentown, Pa.	35,416	51,913
Altoona, Pa.	38,973	52,127
Amsterdam, N.Y.	20,929	31,267
Anaconda, Mont.	9,453	10,134
Annapolis, Md.	8,575	8,609
Ann Arbor, Mich.	14,509	14,817
Asheville, N.C.	14,694	18,762
Ashland, Wis.	13,074	11,594
Astoria, Ore.	8,381	9,599
Atchison, Kan.	15,722	16,429
Atlanta, Ga.	89,872	154,839
Atlantic City, N.J.	27,838	46,150
Auburn, Me.	12,951	15,064
Auburn, N.Y.	30,345	34,668
Augusta, Ga.	39,441	41,040
Augusta, Me.	11,688	13,211
Aurora, Ill.	24,147	29,807

	Population, 1900	Population, 1910
Austin, Tex.	22,258	29,860
Baltimore, Md.	508,957	558,485
Bangor, Me.	21,850	24,803
Barre, Vt.	8,448	10,734
Bath, Me.	10,477	9,396
Baton Rouge, La.	11,269	14,897
Battle Creek, Mich.	18,563	25,267
Bay City, Mich.	40,747	45,166
Bayonne, N.J.	32,722	55,545
Bellingham, Wash.	11,062	24,296
Berkeley, Cal.	13,214	40,434
Biddeford, Me.	16,145	17,079
Billings, Mont.	3,221	10,031
Binghamton, N.Y.	39,647	48,443
Birmingham, Ala.	38,415	132,685
Bisbee, Ariz.	7,000	9,019
Bismarck, N.D.	3,319	5,443
Bloomington, Ill.	23,286	25,768
Boise, Idaho	5,957	17,358
Boston, Mass.	560,892	670,585
Bradford, Pa.	15,029	14,544
Bridgeport, Conn.	70,996	102,054
Brockton, Mass.	40,063	56,878
Brookline, Mass.	19,935	27,792
Brunswick, Ga.	9,081	10,182
Buffalo, N.Y.	352,387	423,715
Burlington, Vt.	18,640	20,468
Butte, Mont.	30,470	39,165
Cambridge, Mass.	91,886	104,839
Camden, N.J.	75,935	94,538
Canton, Ohio	30,667	50,217
Carson City, Nev.	2,100	2,466
Cedar Rapids, Iowa	25,656	32,811
Champaign, Ill.	9,098	12,421
Charleston, S.C.	55,807	58,833
Charleston, W. Va.	11,099	22,996
Charlotte, N.C.	18,091	34,014
Chattanooga, Tenn.	30,154	44,604
Chelsea, Mass.	34,072	32,452
Chester, Pa.	33,988	38,537
Cheyenne, Wyo.	14,087	11,320
Chicago, Ill.	1,698,575	2,185,283
Chicopee, Mass.	19,167	25,401
Cincinnati, Ohio	325,902	364,463
Clarksville, Tenn.	9,431	8,548
Cleveland, Ohio	381,768	560,663
Clinton, Iowa	22,698	25,577
Colorado Springs, Colo.	21,085	29,078
Columbia, S.C.	21,108	26,319
Columbus, Ga.	17,614	20,554
Columbus, Ohio	125,560	181,548
Concord, N.H.	19,632	21,497
Council Bluffs, Iowa	25,802	29,292
Covington, Ky.	42,938	53,270
Cripple Creek, Colo.	10,147	6,206
Dallas, Tex.	42,638	92,104
Danville, Ill.	16,354	27,871
Danville, Va.	16,520	19,020
Davenport, Iowa	35,254	43,028
Dayton, Ohio	85,333	116,577
Decatur, Ill.	20,754	31,140
Denver, Colo.	133,859	213,381
Des Moines, Iowa	62,139	86,368
Detroit, Mich.	285,704	465,766
Douglas, Ariz.	——	6,437
Dover, Del.	3,329	3,720
Dover, N.H.	13,207	13,247
Dubuque, Iowa	36,297	38,494
Duluth, Minn.	52,969	78,466
Durham, N.C.	6,679	18,241
Easton, Pa.	25,238	28,523
East Orange, N.J.	21,506	34,371
Eastport, Me.	5,311	4,961
East St. Louis, Ill.	29,655	58,547
Elgin, Ill.	22,433	25,976
Elizabeth, N.J.	52,130	73,409
Elmira, N.Y.	35,672	37,176
El Paso, Tex.	15,906	39,279
Erie, Pa.	52,733	66,525
Evanston, Ill.	19,259	24,978

	Population, 1900	Population, 1910
Evansville, Ind.	59,007	69,647
Everett, Mass.	24,336	33,484
Fall River, Mass.	104,863	119,295
Fargo, N.D.	9,589	14,331
Findlay, Ohio	17,613	14,858
Fitchburg, Mass.	31,531	37,826
Flint, Mich.	13,103	38,550
Fort Wayne, Ind.	45,115	63,933
Fort Worth, Tex.	26,688	73,312
Frankfort, Ky.	9,487	10,465
Fresno, Cal.	12,470	24,892
Galveston, Tex.	37,789	36,981
Gloucester, Mass.	26,121	24,398
Goldfield, Nev.	——	4,838
Grand Rapids, Mich.	87,565	112,571
Greeley, Colo.	3,023	8,179
Green Bay, Wis.	18,684	25,236
Greenville, S.C.	11,860	15,741
Guthrie, Ok.	10,006	11,654
Hamilton, Ohio	23,914	35,279
Harrisburg, Pa.	50,167	64,186
Hartford, Conn.	79,850	98,915
Haverhill, Mass.	37,175	44,115
Hazelton, Pa.	14,230	25,452
Helena, Mont.	10,770	12,515
High Point, N.C.	4,163	9,525
Hilo, Hawaiian Islands	19,785	6,745
Hoboken, N.J.	59,364	70,324
Holyoke, Mass.	45,712	57,730
Honolulu, Hawaiian Islands	39,306	52,183
Hot Springs, Ark.	9,973	14,434
Houghton, Mich.	3,595	5,113
Houston, Tex.	44,633	78,800
Huntington, W. Va.	11,923	31,161
Huntsville, Ala.	8,068	7,611
Indianapolis, Ind.	169,164	233,650
Ishpeming, Mich.	13,255	12,448
Ithaca, N.Y.	13,136	14,802
Jackson, Mich.	25,180	31,433
Jackson, Miss.	7,816	21,262
Jacksonville, Fla.	28,429	57,699
Jamestown, N.Y.	22,892	31,297
Jefferson City, Mo.	9,664	11,850
Jersey City, N.J.	206,433	267,779
Johnstown, Pa.	35,936	55,482
Joliet, Ill.	29,353	34,670
Joplin, Mo.	26,023	32,073
Juneau, Alaska	1,864	1,644
Kalamazoo, Mich.	24,404	39,437
Kansas City, Kan.	51,418	82,331
Kansas City, Mo.	163,752	248,381
Key West, Fla.	17,114	19,945
Kingston, N.Y.	24,535	25,908
Knoxville, Tenn.	32,637	36,346
La Crosse, Wis.	28,895	30,417
Lancaster, Pa.	41,459	47,227
Lansing, Mich.	16,485	31,229
Laramie, Wyo.	8,207	8,237
Lawrence, Mass.	62,559	85,892
Leadville, Colo.	12,455	7,508
Lewiston, Idaho	2,425	6,043
Lewiston, Me.	23,761	26,247
Lexington, Ky.	26,369	35,099
Lima, Ohio	21,723	30,508
Lincoln, Neb.	40,169	43,973
Little Rock, Ark.	38,307	45,941
Lockport, N.Y.	16,581	17,970
Lorain, Ohio	16,028	28,833
Los Angeles, Cal.	127,927	319,198
Louisville, Ky.	204,731	223,928
Lowell, Mass.	94,969	106,294
Lynchburg, Va.	18,891	29,494
Lynn, Mass.	68,513	89,336
Macon, Ga.	23,272	40,665
Madison, Wis.	19,164	25,531
Malden, Mass.	33,664	44,404
Manchester, N.H.	56,987	70,063
Manila, Philippines, 1903	219,928	——
Marquette, Mich.	10,058	11,503
McKeesport, Pa.	34,227	42,694

	Population, 1900	Population, 1910
Memphis, Tenn.	102,320	131,105
Meriden, Conn.	24,296	27,265
Miami, Fla.	1,681	5,471
Milwaukee, Wis.	285,315	373,857
Minneapolis, Minn.	202,718	301,408
Mobile, Ala.	38,469	51,521
Montgomery, Ala.	30,346	38,136
Montpelier, Vt.	6,266	7,856
Mount Vernon, N.Y.	21,228	30,919
Muskogee, Okla.	4,254	25,278
Nashua, N.H.	23,898	26,005
Nashville, Tenn.	80,865	110,364
Natchez, Miss.	12,210	11,791
Newark, N.J.	246,070	347,469
Newark, Ohio	18,157	25,404
New Bedford, Mass.	62,442	96,652
New Britain, Conn.	25,998	43,916
Newburgh, N.Y.	24,943	27,805
Newcastle, Pa.	28,339	36,280
New Haven, Conn.	108,027	133,605
New Orleans, La.	287,104	339,075
Newport, Ky.	28,301	30,309
Newport, R.I.	22,441	27,149
Newport News, Va.	19,635	20,205
New Rochelle, N.Y.	14,720	28,867
Newton, Mass.	33,587	39,806
New York, N.Y.	3,437,202	4,766,883
Niagara Falls, N.Y.	19,457	30,445
Nome City, Alaska	12,486	2,600
Norfolk, Va.	46,624	67,452
Norristown, Pa.	22,265	27,875
North Yakima, Wash.	3,154	14,082
Oakland, Cal.	66,960	150,174
Ogden, Utah	16,313	25,580
Oil City, Pa.	13,264	15,657
Oklahoma City, Okla.	10,037	64,205
Olean, N.Y.	9,462	14,743
Olympia, Wash.	4,082	6,996
Omaha, Neb.	102,555	124,096
Orange, N.J.	24,141	29,630
Oshkosh, Wis.	28,284	33,062
Oswego, N.Y.	22,199	23,368
Pasadena, Cal.	9,117	30,291
Passaic, N.J.	27,777	54,773
Paterson, N.J.	105,171	125,600
Pawtucket, R.I.	39,231	51,622
Pensacola, Fla.	17,747	22,982
Peoria, Ill.	56,100	66,950
Perth Amboy, N.J.	17,690	32,121
Petersburg, Va.	21,810	24,147
Philadelphia, Pa.	1,293,697	1,549,008
Phœnix, Ariz.	5,544	11,134
Pierre, S.D.	2,306	3,656
Pittsburgh, Pa.	321,616	533,905
Pittsfield, Mass.	21,766	32,121
Plymouth, Mass.	9,562	12,141
Pomona, Cal.	5,526	10,207
Ponce, Porto Rico, 1899	27,952	35,027
Portland, Me.	50,145	58,571
Portland, Ore.	90,426	207,214
Portsmouth, N.H.	10,637	11,269
Portsmouth, Va.	17,427	33,190
Poughkeepsie, N.Y.	24,029	27,936
Prescott, Ariz.	3,559	5,092
Providence, R.I.	175,597	224,326
Provincetown, Mass., 1895	4,555	4,369
Pueblo, Colo.	28,157	44,395
Quincy, Ill.	36,252	36,587
Quincy, Mass.	23,899	32,642
Racine, Wis.	29,102	38,002
Raleigh, N.C.	13,643	19,218
Reading, Pa.	78,961	96,071
Redlands, Cal.	4,797	10,449
Richmond, Va.	85,050	127,628
Riverside, Cal.	7,973	15,212
Roanoke, Va.	21,495	34,874
Rochester, N.Y.	162,608	218,149
Rockford, Ill.	31,051	45,401
Rome, Ga.	7,291	12,099
Rutland, Vt.	11,499	13,546
Sacramento, Cal.	29,282	44,696
Saginaw, Mich.	42,345	50,510
St. Augustine, Fla.	4,272	5,494
St. Joseph, Mo.	102,979	77,403
St. Louis, Mo.	575,238	687,029
St. Paul, Minn.	163,065	214,744
Salem, Mass.	35,956	43,697
Salem, Ore.	4,258	14,094
Salt Lake City, Utah	53,531	92,777
San Antonio, Tex.	53,321	96,614
San Bernardino, Cal.	6,150	12,779
San Diego, Cal.	17,700	39,578
San Francisco, Cal.	342,782	416,912
San José, Cal.	21,500	28,946
San Juan, Porto Rico, 1899	32,048	48,716
Santa Fé, N.M.	5,603	5,072
Sault Ste. Marie, Mich.	10,538	12,615
Savannah, Ga.	54,244	65,064
Schenectady, N.Y.	31,682	72,826
Scranton, Pa.	102,026	129,867
Seattle, Wash.	80,671	237,194
Shawnee, Okla.	3,464	12,474
Sheboygan, Wis.	22,962	26,398
Shenandoah, Pa.	20,321	25,774
Shreveport, La.	16,013	28,015
Sioux City, Iowa	33,111	47,828
Sioux Falls, S.D.	10,266	14,094
Sitka, Alaska	1,396	1,039
Skagway, Alaska	3,117	872
Somerville, Mass.	61,643	77,236
South Bend, Ind.	35,999	53,684
South Omaha, Neb.	26,001	26,259
Spartanburg, S.C.	11,395	17,519
Spokane, Wash.	36,848	104,402
Springfield, Ill.	34,159	51,678
Springfield, Mass.	62,059	88,926
Springfield, Mo.	23,267	35,201
Springfield, Ohio	38,253	46,921
Stamford, Conn.	15,997	25,138
Stockton, Cal.	17,506	23,253
Superior, Wis.	31,091	40,384
Syracuse, N.Y.	108,374	137,249
Tacoma, Wash.	37,714	83,743
Tallahassee, Fla.	2,981	5,018
Tampa, Fla.	15,839	37,782
Taunton, Mass.	31,036	34,259
Terre Haute, Ind.	36,673	58,157
Toledo, Ohio	131,822	168,497
Tonopah, Nev.	——	3,900
Topeka, Kan.	33,608	43,684
Trenton, N.J.	73,307	96,815
Troy, N.Y.	60,651	76,813
Tucson, Ariz.	7,521	13,193
Utica, N.Y.	56,383	74,419
Vicksburg, Miss.	14,834	20,814
Virginia City, Nev.	2,695	2,244
Waco, Tex.	20,686	26,425
Walla Walla, Wash.	10,049	19,363
Waltham, Mass.	23,481	27,834
Warwick, R.I.	21,316	26,629
Washington, D.C.	278,718	331,069
Waterbury, Conn.	45,859	73,141
Waterloo, Iowa	12,580	26,693
Watertown, N.Y.	21,696	26,730
Waterville, Me.	9,477	11,458
West Hoboken, N.J.	23,094	35,403
Wheeling, W. Va.	38,878	41,641
Wichita, Kan.	24,671	52,450
Wilkes Barre, Pa.	51,721	67,105
Williamsport, Pa.	28,757	31,860
Wilmington, Del.	76,508	87,411
Wilmington, N.C.	20,976	25,748
Winona, Minn.	19,714	18,583
Woonsocket, R.I.	28,204	38,125
Worcester, Mass.	118,421	145,986
Yonkers, N.Y	47,931	79,803
York, Pa.	33,708	44,750
Youngstown, Ohio	44,885	79,066
Zanesville, Ohio	23,538	28,026

FOREIGN CITIES MOST OF WHICH ARE MENTIONED IN THE TEXT

	Population
Aachen, Germany, 1910	156,044
Abeokuta, Niger Territory, 1897	150,000
Aberdeen, Scotland, 1909	181,918
Acapulco, Mexico, 1897	5,000
Adelaide, Australia, 1909	184,393
Adis Ababa, Abyssinia	30,000–35,000
Alexandria, Egypt, 1907	332,246
Algiers, Algeria, 1906	138,240
Amsterdam, Netherlands, 1909	568,130
Antwerp, Belgium, 1909	317,171
Archangel, Russia, 1908	30,953
Arequipa, Peru, 1908	35,000–40,000
Asuncion, Paraguay, 1905	60,259
Athens, Greece, 1907	167,479
Auckland, New Zealand, 1906	82,101
Bagdad, Turkey in Asia	75,000
Bahia, Brazil, 1909	230,000
Baku, Russia, 1904	177,777
Ballarat, Australia, 1909	46,615
Bangkok, Siam, 1909	628,675
Barcelona, Spain, 1911	700,000
Barmen, Germany, 1910	169,201
Basel, Switzerland, 1910	131,914
Batavia, Java, 1905	138,551
Belfast, Ireland, 1910	391,167
Belgrade, Servia, 1910	84,235
Benares, India, 1901	209,331
Bendigo, Australia, 1909	44,100
Berbera, Br. Somaliland	30,000
Bergen, Norway, 1910	76,917
Berlin, Germany, 1910	2,070,695
Berne, Switzerland, 1910	85,264
Bilbao, Spain, 1910	92,514
Birmingham, England, 1910	570,113
Bloemfontein, South Africa, 1904	33,883
Bogota, Colombia, 1909	150,300
Bologna, Italy, 1909	165,000
Bombay, India, 1910	972,892
Bordeaux, France, 1906	251,917
Bradford, England, 1910	295,865
Bremen, Germany, 1910	246,827
Breslau, Germany, 1910	511,891
Brindisi, Italy, 1907	22,021
Brisbane, Australia, 1909	143,077
Bristol, England, 1910	382,550
Brussels, Belgium, 1909	649,846
Bucharest, Roumania, 1908	300,000
Budapest, Austria-Hungary, 1901	732,422
Buenos Aires, Argentina, 1911	1,326,994
Cadiz, Spain, 1910	67,174
Cairo, Egypt, 1907	654,476
Calcutta, India, 1911	1,216,514
Calgary, Canada, 1906	11,967
Callao, Peru, 1908	31,000
Cambridge, England, 1905	38,769
Canton, China	1,600,000
Cape Town, Cape of Good Hope, 1904	169,641
Caracas, Venezuela, 1894	72,429
Cardiff, Wales, 1910	199,189
Cartagena, Colombia, 1908	27,000
Cartagena, Spain, 1900	99,871
Catania, Italy, 1908	163,000
Cayenne, French Guiana, 1910	12,426
Cettinje, Montenegro, 1906	4,500
Chemnitz, Germany, 1905	244,927
Christchurch, New Zealand, 1906	67,878
Christiania, Norway, 1910	243,801
Ciudad Bolivar, Venezuela, 1894	11,686
Cologne, Germany, 1910	516,167
Colon, Panama, 1907	3,000
Constantinople, Turkey	1,125,000
Copenhagen, Denmark, 1906	426,540
Cordoba, Argentina, 1909	70,380
Cordoba, Spain, 1910	65,160
Cork, Ireland, 1901	76,122
Cuzco, Peru, 1908	10,000–15,000
Damascus, Turkey in Asia	250,000
Danzig, Germany, 1910	170,347
Dawson, Canada, 1901	9,142
Delhi, India, 1901	208,575
Dover, England, 1905	43,734
Dresden, Germany, 1910	546,882
Dublin, Ireland, 1910	402,928
Dundee, Scotland, 1909	169,409
Dunedin, New Zealand, 1906	56,020
Durban, Natal, 1909	59,000
Edinburgh, Scotland, 1909	355,366
Elberfeld, Germany, 1910	170,118
Essen, Germany, 1910	294,629
Fez, Morocco, 1910	140,000
Fiume, Austria-Hungary, 1900	38,955
Florence, Italy, 1908	227,000
Frankfort, Germany, 1910	414,598
Fredericton, Canada, 1901	7,117
Freetown, Sierra Leone, 1910	37,682
Fuchau, China, 1909	624,000
Geneva, Switzerland, 1910	125,520
Genoa, Italy, 1908	275,000
Georgetown, British Guiana, 1908	53,176
Ghent, Belgium, 1909	164,659
Gibraltar, Spanish Pen., 1909	25,915
Glasgow, Scotland, 1909	872,021
Gothenburg, Sweden, 1909	163,957
Granada, Spain, 1910	74,283
Grimsby, England, 1910	74,283
Guatemala, Guatemala, 1906	125,000
Guayaquil, Ecuador, 1910	80,000
Hague, The, Netherlands, 1909	270,109
Halifax, Canada, 1901	40,832
Halle, Germany, 1910	180,551
Hamburg, Germany, 1910	936,000
Hamilton, Bermuda, 1907	2,246
Hamilton, Canada, 1901	52,634
Hammerfest, Norway, 1891	2,239
Hangchau, China, 1909	350,000
Hankau, China, 1909	820,000
Hanover, Germany, 1910	302,384
Havana, Cuba, 1910	302,526
Havre, France, 1906	132,430
Hebron, Holy Land, 1905	18,000–19,000
Helsingfors, Russia, 1907	130,844
Hobart, Tasmania, 1901	24,655
Hongkong, China, 1908	329,650
Hué, French Ind. China, 1910	50,000
Hull, England, 1909	275,552
Hyderabad, India, 1901	448,466
Iquique, Chile, 1907	40,171
Irkutsk, Siberia, 1904	75,697
Jaffa, Holy Land	45,000
Jerusalem, Holy Land, 1910	70,000
Johannesburg, Transvaal, 1910	158,580
Kabul, Afghanistan	60,000
Khartum, Egyptian Sudan, 1909	20,956
Khelat, Baluchistan, 1897	14,000
Kiev, Russia, 1904	320,000
Kimberley, Cape of Good Hope, 1904	34,331
Kingston, Canada, 1901	17,961
Kingston, Jamaica, 1891	46,542
Kioto, Japan, 1908	442,462
Königsberg, Germany, 1910	245,853
Krefeld, Germany, 1910	129,412
Kumassi, Ashanti, 1910	7,000
La Guaira, Venezuela, 1897	8,000
La Paz, Bolivia, 1909	78,856
La Plata, Argentina, 1909	95,126
Lassa, Tibet	15,000–20,000
Leeds, England, 1910	490,985
Leghorn, Italy, 1908	108,000
Leicester, England, 1910	248,374
Leipzig, Germany, 1910	587,635

	Population
Leith, Scotland, 1909	85,721
Libreville, French Congo, 1897	3,000
Liege, Belgium, 1909	176,893
Lille, France, 1906	205,602
Lima, Peru, 1908	140,884
Limoges, France, 1906	88,597
Lisbon, Portugal, 1900	356,009
Liverpool, England, 1910	767,606
Loanda, Port. W. Africa, 1897	14,000
Lodz, Russia, 1908	393,526
London, Canada, 1901	37,981
London, England, 1910	4,872,702
London, Greater, 1910	7,587,196
Lourenço Marquez, Port. E. Africa, 1908	9,849
Lucerne, Switzerland, 1910	39,152
Lucknow, India, 1901	264,049
Lyon, France, 1906	472,114
Madras, India, 1901	509,346
Madrid, Spain, 1910	571,539
Magdeburg, Germany, 1910	279,685
Malaga, Spain, 1910	133,045
Manaos, Brazil, 1909	50,000
Manchester, England, 1910	716,354
Mandalay, Burma, 1901	183,816
Marseille, France, 1906	517,498
Maskat, Oman, 1907	25,000
Mecca, Turkey	80,000
Melbourne, Australia, 1909	562,300
Messina, Italy, 1908	149,778
Metz, Germany, 1910	68,667
Mexico City, Mexico, 1910	470,659
Milan, Italy, 1908	584,000
Mocha, Turkey in Asia, 1897	5,000
Mombasa, Br. E. Africa, 1910	30,000
Monrovia, Liberia, 1908	8,000
Montevideo, Uruguay, 1909	291,465
Montreal, Canada, 1901	267,730
Morocco, Morocco, 1897	50,000
Moscow, Russia, 1907	1,359,254
Munich, Germany, 1910	595,053
Nogoya, Japan, 1908	378,231
Naples, Italy, 1908	596,000
Nassau, Bahama, 1910	12,534
Nazareth, Holy Land, 1905	11,000
Newcastle, England, 1909	281,584
Nice, France, 1906	134,232
Nizhni Novgorod, Russia, 1904	92,273
Nottingham, England, 1910	266,471
Nuremberg, Germany, 1910	332,651
Odessa, Russia, 1909	520,000
Oporto, Portugal, 1900	167,955
Osaka, Japan, 1908	1,226,590
Ottawa, Canada, 1901	59,928
Oxford, England, 1910	53,220
Palermo, Italy, 1908	319,000
Panama, Panama, 1909	40,801
Para, Brazil, 1892	65,000
Paramaribo, Dutch Guiana, 1909	34,795
Paris, France, 1911	2,846,986
Peking, China	1,600,000
Pernambuco, Brazil, 1906	150,000
Perth, West Australia, 1908	54,854
Peterborough, Canada, 1901	11,239
Pietermaritzburg, Natal, 1908	31,230
Piræus, Greece, 1907	73,579
Pisa, Italy, 1901	61,321
Port Arthur, Canada, 1901	3,214
Port Arthur, China	——
Port au Prince, Haiti, 1908	100,000
Port Said, Egypt, 1907	49,884
Portsmouth, England, 1910	217,989
Posen, Germany, 1910	156,696
Potsdam, Germany, 1910	62,224
Prague, Austria-Hungary, 1909	293,649
Pretoria, Transvaal, 1904	36,889
Puebla, Mexico, 1910	101,214
Quebec, Canada, 1901	68,840
Queenstown, Ireland, 1891	9,082
Quito, Ecuador, 1909	70,000
Rangoon, Burma, 1911	289,432

	Population
Rheims, France, 1906	109,859
Riga, Russia, 1908	318,400
Rio de Janeiro, Brazil, 1909	1,000,000
Rome, Italy, 1909	575,000
Rosario, Argentina, 1909	176,076
Rotterdam, Netherlands, 1909	417,780
Roubaix, France, 1906	121,017
Rouen, France, 1906	118,459
St. Etienne, France, 1906	146,788
St. John, Canada, 1901	40,711
St. John's, Newfoundland, 1901	31,501
St. Petersburg, Russia, 1901	1,907,708
Samarkand, Russian Turkestan, 1905	66,166
San Luis Potosi, Mexico, 1910	82,946
San Salvador, Salvador, 1906	59,540
Santiago, Chile, 1907	332,724
Santo Domingo, Santo Domingo, 1909	18,626
Santos, Brazil, 1900	35,000
São Paulo, Brazil, 1909	400,000
Seoul, Korea, 1908	150,000
Seville, Spain, 1910	155,366
Sèvres, France, 1891	6,902
Shanghai, China	1,000,000
Sheffield, England, 1910	478,763
Siangtan, China, 1908	1,000,000
Singanfu, China, 1908	1,000,000
Singapore, Straits Settlements, 1901	228,555
Smyrna, Turkey, 1910	350,000
Sofia, Bulgaria, 1910	102,769
Southampton, England, 1910	127,157
Stettin, Germany, 1910	236,145
Stockholm, Sweden, 1909	341,816
Strassburg, Germany, 1910	178,290
Stuttgart, Germany, 1910	285,589
Suchau, China, 1908	500,000
Sucre, Bolivia, 1909	23,416
Suez, Egypt, 1910	18,347
Swansea, Wales, 1910	98,817
Sydney, Australia, 1909	605,900
Tampico, Mexico, 1894	9,885
Tananarivo, Madagascar, 1909	94,810
Tangier, Morocco, 1901	35,003
Tashkend, Russian Turkestan, 1904	164,740
Teheran, Persia, 1905	280,009
Tiberias, Holy Land, 1905	5,000
Tientsin, China, 1910	1,000,000
Tiflis, Russia, 1904	196,935
Timbuktu, Sudan, 1897	20,000
Tokyo, Japan, 1908	2,168,079
Toronto, Canada, 1901	208,040
Trebizond, Turkey in Asia	51,000
Trieste, Austria-Hungary, 1910	229,475
Tripoli, Tripoli, 1909	30,000
Trondhjem, Norway, 1910	45,228
Tunis, Tunis, 1906	227,519
Turin, Italy, 1908	371,000
Upernivik, Greenland	700
Valencia, Spain, 1900	213,530
Valparaiso, Chile, 1907	162,447
Vancouver, Canada, 1901	26,133
Venice, Italy, 1908	160,000
Vera Cruz, Mexico, 1910	29,164
Versailles, France, 1906	54,820
Victoria, Canada, 1901	20,816
Vienna, Austria-Hungary, 1911	2,004,291
Vladivostok, Siberia, 1909	90,162
Warsaw, Russia, 1908	764,054
Wellington, New Zealand, 1906	63,807
West Ham, England, 1910	328,585
Windsor, Canada, 1901	12,153
Winnipeg, Canada, 1906	90,153
Wuchang, China, 1898	800,000
Yakoba, Niger Terr., 1897	50,000
Yarmouth, Canada, 1901	6,420
Yokohama, Japan, 1908	394,303
Zanzibar (British), 1910	35,262
Zurich, Switzerland, 1910	189,088

ELEVATION OF SOME PLATEAUS AND MOUNTAIN PEAKS

	Feet
Abyssinian Plateau	5–7,000
Aconcagua, Andes, Argentina (highest in South America)	22,860
Apo, Mindanao, Philippines	10,312
Ararat, Turkey in Asia	17,325
Mt. Blanc, Alps, France (highest in Alps)	15,781
Bolivian Plateau	10–13,000
Brazilian Plateau	2–2,500
Chimborazo, Andes, Ecuador	20,498
Cotopaxi, Andes, Ecuador	19,613
Elbruz, Caucasus, Russia	18,200
Etna, Sicily	10,835
Everest, Himalayas, Nepal (highest known in the world)	29,002
Fremont Peak, Rocky Mountains, Wyo.	13,790
Fujiyama, Japan	12,365
Hecla, Iceland	5,110
Kunchinjunga	28,156
Kenia, Africa	18,620
Kilimanjaro, Africa (highest known in Africa)	19,780
Kosciusko, Australia (highest in Australia)	7,336
Logan, Coast Ranges, Canada (highest known in Canada)	19,539
McKinley, Alaska (highest known in North America)	20,464
Mauna Kea, Hawaiian Islands	13,805
Mauna Loa, Hawaiian Islands	13,675
Mayon, Luzon Island, Philippines	8,900
Mexican Plateau	5–6,000
Mitchell, Appalachian Mts., N.C. (highest in Eastern U.S.)	6,711
Mt. Marcy, New York	5,344
Mt. Tina, Haiti	10,300
Orizaba, Mexico (highest in Mexico)	18,314
Pico del Turquino, Cuba	8,600
Pike's Peak, Rocky Mountains, Colorado	14,111
Popocatepetl, Mexico	17,798
Rainier, Cascade Mountains, Washington	14,363
St. Elias, Alaska	18,025
San Francisco Mountain, Arizona	12,794
Shasta, Cascade Mountains, California	14,380
Tibet Plateau	10–15,000
United States, Western Plateau	5–6,000
Vesuvius, Italy	4,200
Washington, White Mountains, N.H. (highest in North-eastern U.S.)	6,279
Whitney, Sierra Nevada, California (highest in Western U.S.)	14,502
Yunque, Porto Rico	3,609

SOME OF THE LARGEST RIVERS OF THE WORLD

	Length in Miles	Basin Area Sq. Miles	Ocean
North America			
Arkansas	2,170	185,671	Atlantic
Colorado	2,000	225,049	Pacific
Columbia	1,400	216,537	Pacific
Mackenzie	2,000	590,000	Arctic
Missouri	3,000	527,155	Atlantic
Missouri-Mississippi	4,300	1,257,000	Atlantic
Nelson	1,732	432,000	Atlantic
Ohio	975	201,720	Atlantic
Rio Grande	1,800	240,000	Atlantic
St. Lawrence	2,200	530,000	Atlantic
Yukon	2,000	440,000	Pacific
South America			
Amazon	3,300	2,500,000	Atlantic
Orinoco	1,350	366,000	Atlantic
Plata	2,580	1,200,000	Atlantic
São Francisco	1,800	200,000	Atlantic
Europe			
Danube	1,770	300,000	Atlantic
Dneiper	1,200	242,000	Atlantic
Dwina	1,000	140,000	Arctic
Elbe	725	55,000	Atlantic
Po	400	27,000	Atlantic
Rhine	800	75,000	Atlantic
Rhone	500	38,000	Atlantic
Europe			
Seine	482	30,300	Atlantic
Thames	228	6,100	Atlantic
Volga	2,400	563,300	Caspian
Asia			
Amur	2,800	520,000	Pacific
Brahmaputra	1,800	425,000	Indian
Ganges	1,500	440,000	Indian
Hoang-ho	2,700	570,000	Pacific
Indus	1,800	372,700	Indian
Irawadi	1,500	158,000	Indian
Lena	2,800	950,000	Arctic
Mekong	2,800	280,000	Pacific
Ob	3,200	1,000,000	Arctic
Yangtse-kiang	3,200	548,000	Pacific
Yenisei	3,000	1,500,000	Arctic
Africa			
Congo	2,900	1,200,000	Atlantic
Niger	2,600	563,300	Atlantic
Nile	3,400	1,273,000	Atlantic
Zambezi	1,500	600,000	Indian
Australia			
Darling	1,100	——	Indian
Murray	1,000	270,000	Indian

SOME OF THE LARGE LAKES OF THE WORLD

	Area in Sq. Miles	Elevation in Feet	Greatest Depth in Feet
Aral Sea	26,900	160	225
Baikal	12,500	1,312	4,550
Balkash	7,800	780	70
Caspian	169,000	— 85 [1]	2,400
Chad, variable with season and often more	10,000	800–900	12
Dead Sea	370	— 1,310 [1]	1,330
Erie	9,990	573	210
Great Bear Lake	11,200	200	——
Great Salt Lake	2,360	4,218	30–50
Great Slave Lake	10,100	——	over 650
Huron	22,322	582	750
Ladoga	7,000	60	730
Manitoba	1,850	810	——
Michigan	21,729	582	870
Nicaragua	3,600	110	83
Nyassa	14,000	1,500	600 +
Ontario	7,104	247	738
Superior	30,829	602	1,008
Tanganyika	12,650	2,800	2,100
Titicaca	3,300	12,875	700
Victoria Nyanza	30,000	4,000	590 +
Winnipeg	9,400	710	70

[1] Below sea level.

DISTRIBUTION OF MANKIND

Mongolians	**540,000,000**
China	380,000,000
Japan and Korea	55,000,000
Indo-China	35,000,000
Malaysia	30,000,000
Other Mongolians	40,000,000
Caucasians	**770,000,000**
Europe	355,000,000
Asia	280,000,000
America	115,000,000
Africa	15,000,000
Australasia	5,000,000

DISTRIBUTION OF MANKIND

Ethiopians	**173,000,000**
Africa and Madagascar	153,000,000
North and South America	20,000,000
American Indians	**22,170,000**
Mexico	8,765,000
Brazil	4,200,000
Colombia	3,150,000
Peru	2,700,000
Bolivia, Guatemala, and Venezuela	4,225,000
United States	250,000
Canada	100,000

RELIGIONS OF MANKIND

Buddhists and Brahmins	650,000,000
Christians	440,000,000
Jews	8,000,000
Mohammedans	180,000,000
Pagans and others	250,000,000

PRINCIPAL COUNTRIES FROM WHICH THE FOREIGN-BORN POPULATION OF THE UNITED STATES HAS COME

Country of Birth	Number in 1910
Austria-Hungary	258,737
Italy	215,537
Russian Empire	186,792
British North America	56,555
England	46,706
German Empire	31,283
Ireland	29,855
Greece	25,888
Sweden	23,745
Scotland	20,115

DISTRIBUTION OF NEGROES IN THE FIFTEEN STATES WHERE THEY ARE MOST NUMEROUS

States	Number of Negroes in 1900	Percentage of Negroes to Total Population, 1900
1. Georgia	1,034,813	46.69
2. Mississippi	907,630	58.50
3. Alabama	827,307	45.24
4. South Carolina	782,321	58.36
5. Virginia	660,722	35.63
6. Louisiana	650,804	47.10
7. North Carolina	624,469	32.97
8. Texas	620,722	20.36
9. Tennessee	480,243	23.77
10. Arkansas	366,856	27.97
11. Kentucky	284,706	13.25
12. Maryland	235,064	19.75
13. Florida	230,730	43.65
14. Missouri	161,234	5.18
15. Pennsylvania	156,845	2.48

Total number of Negroes in 1900, 8,840,789.

INDEX AND PRONOUNCING VOCABULARY

KEY TO PRONUNCIATION

ā, as in āle ; ǡ, as in sen'ȧte ; â, as in câre ; ă, as in ăm ; ä, as in ärm ; ȧ, as in ȧsk ; *a*, as in fi'n*a*l ; ạ, as in ạll ; ē, as in ēve ; ḗ, as in ḗ-vent' ; ĕ, as in ĕnd ; ē̆, as in fēr̆n ; *e*, as in re'*c*ent ; ī, as in īce ; ḯ, as in ḯ-de'a ; ĭ, as in ĭll ; ō, as in ōld ; ȱ, as in ȱ-bey' ; ȯ, as in ȯrb ; ŏ, as in ŏdd ; ū, as in ūse ; ṵ̄, as in ṵ̄-nite' ; ụ̄, as in rụ̄de ; ụ, as in full ; ŭ, as in ŭp ; û, as in ûrn ; ў, as in pit'ў ; o͞o, as in fo͞od ; o͞o, as in fo͞ot ; ou, as in out ; oi, as in oil ; N, representing simply the nasal tone of the preceding vowel, as in ensemble (äN'säN'b'l) ; ' (for voice glide), as in pardon (pär'd'n) ; g (hard), as in go ; s (sharp), as in so ; z (like s sonant), as in zone ; ch (= tsh), as in chair ; sh, for ch, as in machine ; zh (= sh made sonant), for z, as in azure ; j (= dzh), for g, as in gem ; k, for ch, as in chorus ; kw, for qu, as in queen ; ks (surd), for x, as in vex ; gz (sonant), for x, as in exist ; f, for ph, as in philosophy ; hw, for wh, as in what ; t, for ed, as in baked ; ng, as in long ; ṉ (like ng), for n before the sound of k or hard g, as in bank ; n (ordinary sound), as in no ; th (sonant), for th, as in then ; th (surd), as in thin.

The primary accent is indicated by a short, heavy mark (′), the secondary by a lighter mark (′).

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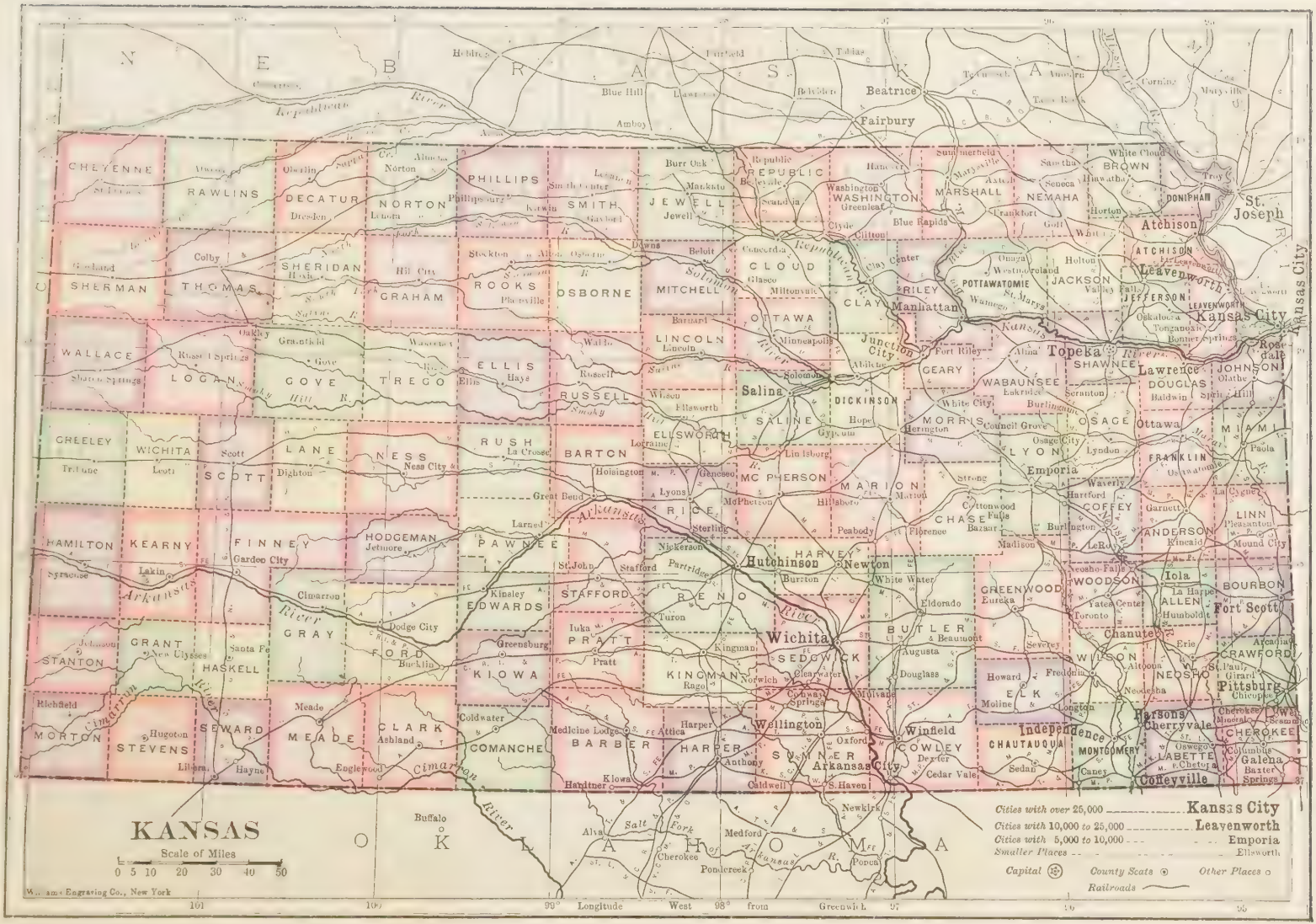
KANSAS
Scale of Miles
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Cities with over 25,000 Kansas City
Cities with 10,000 to 25,000 Leavenworth
Cities with 5,000 to 10,000 Emporia
Smaller Places Ellsworth
Capital
County Seats
Other Places
Railroads
Longitude West from Greenwich
NEBRASKA
OKLAHOMA
CHEYENNE
RAWLINS
DECATUR
NORTON
PHILLIPS
SMITH
JEWELL
REPUBLIC
WASHINGTON
MARSHALL
NEMAHA
BROWN
DONIPHAN
SHERMAN
THOMAS
SHERIDAN
GRAHAM
ROOKS
OSBORNE
MITCHELL
CLOUD
CLAY
RILEY
POTTAWATOMIE
JACKSON
ATCHISON
JEFFERSON
LEAVENWORTH
WALLACE
LOGAN
GOVE
TREGO
ELLIS
RUSSELL
LINCOLN
OTTAWA
DICKINSON
GEARY
WABAUNSEE
SHAWNEE
DOUGLAS
JOHNSON
GREELEY
WICHITA
SCOTT
LANE
NESS
RUSH
BARTON
SALINE
ELLSWORTH
MORRIS
OSAGE
FRANKLIN
MIAMI
HAMILTON
KEARNY
FINNEY
HODGEMAN
PAWNEE
RICE
MC PHERSON
MARION
CHASE
LYON
COFFEE
ANDERSON
LINN
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GRAY
FORD
EDWARDS
STAFFORD
RENO
HARVEY
BUTLER
GREENWOOD
WOODSON
ALLEN
BOURBON
CRAWFORD
MORTON
STEVENS
SEWARD
MEADE
CLARK
KIOWA
PRATT
KINGMAN
SEDGWICK
ELK
WILSON
NEOSHO
COMANCHE
BARBER
HARPER
SUMNER
COWLEY
CHAUTAUQUA
MONTGOMERY
LABETTE
CHEROKEE
Salina
Topeka
Lawrence
Kansas City
Leavenworth
Atchison
St. Joseph
Manhattan
Junction City
Hutchinson
Newton
Wichita
Emporia
Iola
Fort Scott
Chanute
Pittsburg
Parsons
Cherryvale
Coffeyville
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Clay Center
Abilene
Fairbury
Beatrice
Colorado
Nebraska
Missouri
Indian Territory
Arkansas River
Smoky Hill R.
Saline R.
Solomon R.
Kansas R.
Neosho R.
Cimarron River
Salt Fork
Medford
Pondcreek
Cherokee
Alva
Buffalo
Hardtner
Caldwell
S. Haven
Newkirk
Cedar Vale
Sedan
Caney
Oswego
Chetopa
Galena
Baxter Springs
Columbus
Oxford
Anthony
Kingman
Pratt
Greensburg
Coldwater
Englewood
Meade
Liberal
Hugoton
Richfield
Syracuse
Lakin
Scott City
Leoti
Tribune
Colby
Oberlin
Norton
Phillipsburg
Smith Center
Mankato
Burr Oak
Belleville
Scandia
Clyde
Clifton
Blue Rapids
Frankfort
Seneca
Sabetha
Troy
Hiawatha
Horton
Holton
Oskaloosa
Tonganoxie
Bonner Springs
Olathe
Paola
Ottawa
Garnett
Iola
Yates Center
Eureka
Howard
Moline
Longton
Neodesha
Altoona
Erie
Girard
Arcadia
Humboldt
Yoseko Falls
Burlington
Lyons
Sterling
Nickerson
Hoisington
Great Bend
Ellsworth
Lincoln
Minneapolis
Abilene
Junction City
Fort Riley
Alma
Wamego
St. Marys
Westmoreland
Omaha
Valley Falls
Oskaloosa
Tonganoxie
Bonner Springs
Lawrence
Baldwin

GEOGRAPHY OF KANSAS

BY EDWIN L. HOLTON, PROFESSOR OF RURAL EDUCATION, KANSAS STATE AGRICULTURAL COLLEGE

The word "Kansas" is an Indian name, meaning the South Wind People. The Dakota Indians called their near relatives who lived to the south of them in the region along what is now the Kansas River, the Kaws, or Kansas, which in their language meant the South Wind People.

Name

In 1854 Congress passed a bill, known as the Kansas-Nebraska Bill, for the organization of the territories of Kansas and Nebraska. This bill granted the right to the people who settled in those territories to decide whether or not slavery should exist in those territories. This meant that the state government should determine whether Kansas should be a free or a slave state when it entered the Union. In order to get control of the government, two streams of settlers set out from other states to settle in Kansas, one stream from the North, with a steadfast determination that Kansas should be a free state, and another stream from the South, with an equal determination that Kansas should be a slave state. The slave owners brought with them their slaves and many reckless "border ruffians" from Missouri. When these two streams of settlers met on Kansas soil, the inevitable result was a bloody struggle for supremacy. For several years Kansas was known as "Bleeding Kansas." At first the slave party proved the stronger. But in 1859 a convention was held at Wyandotte (now part of Kansas City, Kansas) and adopted a constitution which forever prohibited slavery in Kansas. This constitution was ratified by a vote of the people in October, 1859. In April, 1860, a bill passed the National House of Representatives to admit Kansas as a free state. Not until January, 1861, after several senators from Southern States had withdrawn from the Senate because their states had seceded, did the Senate pass the bill. January 29, 1861, President Buchanan signed the bill, and Kansas became a free state. Thus on the broad, fertile prairies of the "South Wind People," was born in blood the free state of Kansas, fighting for the cause of human freedom.

Struggle for freedom

Kansas lies between 94° 38′ and 102° west longitude, and 37° and 40° north latitude. It is bounded on the north by Nebraska, on the east by Missouri, on the south by Oklahoma, and on the west by Colorado. Kansas is the geographical center of the United States.

Location and boundaries

Kansas ranks twelfth in land area

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among the states of the United States. Its greatest length is 410 miles, and its greatest breadth is about 210 miles, with a total area of 82,158 square miles, or 52,531,200 acres.

Area, Surface and elevation

The state lies wholly within the Great Plains Region, which stretches from the Mississippi westward to the Rocky Mountains. The surface inclines gradually upwards from its eastern boundary, where the altitude is about 850 feet above sea level, to the western boundary, which has an average altitude of about 4000 feet above sea level. The highest elevation, which is near Kanorado on the western boundary, is about 4000 feet above sea level. The lowest point, which is near Coffeyville, is 725 feet above sea level. The eastern half of the state has a rolling surface, considerably broken by the larger streams. The western half consists of broad, rolling prairies dissected by shallow river valleys.

Elevation and surface

The Missouri River forms the northern third of the eastern boundary. The Kaw or Kansas River is formed by the junction of the Smoky Hill and Republican rivers near Junction City. The main tributaries are the Blue, Vermillion, Delaware, Stranger, and Wakarusa rivers, and Mill and Soldier creeks. The chief tributaries of the Smoky Hill are the Saline and Solomon rivers. The Kaw, with its branches, drains all the northern half of the state, except the northeastern corner, which is drained by the Missouri. The Arkansas River enters the state at the thirty-eighth parallel in Hamilton County; crossing the southwestern part of the state, it leaves the state in Cowley County, a few miles east of Arkansas City. Its main tributaries are the Pawnee, Little Arkansas, Walnut, Verdigris, Neosho, Cimarron, Medicine Lodge, Chikaskia, and Ninnescah rivers. The Cottonwood empties into the Neosho in Lyon County near Emporia. The Arkansas with its tributaries drains all the southern half of the state. The Osage is formed by the junction of the Marais des Cygnes and the Dragoon creeks and drains the east central counties.

Rivers and drainage

The counties north of the Kansas river and east of the Blue River lie within the glacial portion of the plains region. Within this section the underlying rocks are buried by a glacial till, which in turn is covered by a deposit of fine silty material called loess. Practically all the soils of the region are derived from the loess covering. The main soil is a brown silty loam well adapted to the production of general farm crops. The soils of southeastern and central Kansas have been formed by the weathering of the underlying rocks. They consist principally of silty loams and clay loams which are usually gray to brown in color. Northwestern Kansas is covered with a thick deposit of loess. The soil is a brown silty loam in the eastern portion of this region and a yellowish silty loam in the western portion. The southwestern portion of the state is covered with a sandy soil, which has been derived from the "plains marl."

Soil

In the eastern half of the state the normal annual rainfall ranges from twenty-five to thirty-five inches. This is sufficient rainfall for maturing all farm crops. In

Rainfall

Harvesting wheat on a Kansas farm.

the western portion of the state the rainfall is lighter; the normal annual precipitation ranges from fifteen to twenty-five inches. This is sufficient to produce a heavy growth of grass on the prairies and for maturing grain crops under intensive cultivation.

Irrigation

There are many miles of irrigating ditches and canals along the Arkansas River, through which water is lead to the adjacent fields. There are some artesian wells in southwestern Kansas, which are used for irrigation purposes. There is a great underflow of water in western Kansas. Wells are being sunk into this and pumping plants installed to irrigate the surrounding country. The total amount of land irrigated in 1910 was 161,300 acres.

Climate

Kansas, because of her interior location, has a continental climate with extremes and sudden changes of temperature. During the summer months the thermometer occasionally goes above 100° F., but the dry atmosphere and the south winds and cool nights somewhat ameliorate the intense heat. These hot spells usually are of short duration, lasting only a few days. The fall is the most pleasant season in Kansas, the beautiful mild days continuing almost until Christmas. The winter months are not often severely cold. Like the extreme heat of summer, the zero weather is of short duration. The coldest weather comes in January and February. There are frequent snowstorms, but they are not often heavy, and the snow melts in a few days. The greatest rainfall comes during the spring months. The climate of the southern part of the state is from four to six degrees warmer than that of the northern part.

Modern farm home.

The population of Kansas according to the 1910 census is 1,690,949.

Population

The following table shows the increase in population since it was admitted as a state: —

1860	107,206
1870	364,399
1880	996,096
1890	1,428,108
1900	1,470,495
1910	1,690,949

Kansas has 105 counties. The population of these counties ranges from 993 in Haskell County to 100,068 in Wyandotte. The average number of persons to the square mile in Kansas is 20.7. Wyandotte has the greatest density of any county, which is 699.8 persons to the square mile. Stanton County has the lowest, with 1.5 persons to the square mile.

Fifty-four per cent of the inhabitants of Kansas live in the country, 46 per cent live in cities.

Government

The constitution of Kansas, which was adopted in 1859, is similar to that of the other states. The government is divided into the executive, legislative, and judicial departments. The officers in the executive department are governor, lieutenant governor, secretary of state, auditor, treasurer, attorney-general, superintendent of public instruction, superintendent of insurance, and state printer, all of whom are elected for a term of two years, by popular vote. Other state officials are appointed by the governor and ratified by the state Senate. A

Modern city home.

State Capitol at Topeka.

board of control consisting of three members for the management of the State's Prison at Lansing, the three Hospitals for the Insane, at Topeka, Osawatomie, and Parsons, the State Reformatory at Hutchinson, and the other state charitable institutions, a board to regulate public utilities, and a state tax commission are also appointed by the governor.

The State Board of Agriculture, State Historical Society, State Horticultural Society, and State Board of Health are all provided by law, elect their own officers, and are all doing much in furthering their respective functions in the state.

A State Society of Labor and Industry is composed of representatives from all of the labor organizations in the state. This society elects a commissioner and an assistant commissioner of labor who are at the head of the Bureau of Labor and Industry for the state. This form of organization is unique to this state and insures the labor organizations a commissioner of labor who is friendly to them.

The legislative department is made up of a Senate of forty members and a

House of Representatives of one hundred twenty-five members. The senators are elected for a term of four years and the representatives for a term of two years. The legislature meets biennially at Topeka, beginning in January of odd years, the legislators being paid for not more than fifty days. Special sessions may be called by the governor.

The judicial department consists of a system of courts, the highest being the Supreme Court, composed of the chief justice and six supreme judges. They sit at Topeka and have state-wide jurisdiction. They are elected for a term of six years. There are thirty-six district courts, for each of which a judge is elected for a term of four years. Each county has a probate court and each township a justice court which have jurisdiction over minor offenses. There are three Federal Court divisions in the state.

A rural school house.

Kansas has eight representatives to the National House of Representatives, each of whom is elected for a term of two years from his respective district. Kansas has two United State senators, who are elected by the state legislature for terms of six years.

Each county of Kansas elects a board of three county commissioners for a term of four years. They have administration over local affairs of each county. Other county and township officers are elected for two years. Up to the present time the cities and towns of Kansas have been governed by a mayor and a council, composed of two members elected from each ward, but recently many towns have adopted the commission form of government, in which the power is vested in three commissioners, elected from the city at large.

At present, in Kansas, women have municipal and school suffrage.

Another important feature of the state government is the prohibition of the manufacture and sale of intoxicating liquors.

NOTE.—(For fuller information on state government, see Arnold's "Civics and Citizenship.")

Education

Each child in Kansas, unless physically or mentally incapacitated, is required by law to attend school or be privately taught, between the ages of eight and fourteen. A free school system is provided by the state, which takes the child from the kindergarten up through the University. A school fund, derived from land set apart when Kansas was admitted as a state, amounts to $10,000,000, and the interest

is used for the support of the common schools. In addition to this, there is a school tax, and large appropriations are made by the legislature for the maintenance and improvement of the institutions of higher learning.

The state superintendent of public instruction has general supervision over the common schools of the state and the normal institutes, which are held annually for one month in each county for the instruction of teachers. There is a State Board of Education composed of seven members and of which the state superintendent is chairman. The other members are the presidents of the State University, the State Agricultural College, and the State Normal, together with three members who are engaged in school work and are appointed by the governor. This board provides courses of study for public schools and normal institutes, grants state diplomas for teaching and certificates for institute instructors, and prepares uniform questions for teachers' examinations.

In 1910 there were 8534 organized districts maintaining district schools. Each of these is controlled by a board of three members elected by the people of the district. A county superintendent elected for a term of two years supervises the work of the schools in each county, and has charge of the normal institute in that county.

There are 468 towns and cities having high schools in addition to their graded schools. Each city of the first and second class elects a board of six members to manage its school system. Cities of the third class have a board of three members. A state law provides for the establishment of county high schools, and twenty-two counties have taken advantage of this law. Each of one hundred high schools receives part of an appropriation which enables it to give a normal training course in addition to its regular course of study. One hundred high schools receive state aid in order to enable them to offer courses in domestic science and agriculture. The tendency in all town and country schools of the state is to broaden the course of study along industrial lines, giving the boys agricultural and manual training,

High School building, Atchison.

State University of Kansas.

the girls domestic science and domestic art, in addition to the studies ordinarily given.

The state has three schools for higher learning. The State University, at Lawrence, was established in 1866, with three teachers and forty students. Now the enrollment reaches 2500, and the faculty numbers about 200, while the property is valued at $2,500,000. The University ranks among the best in the country.

The State Agricultural College at Manhattan was founded in 1863 with fifty-two students. Its enrollment now reaches 2500, and its property is valued at $2,500,000 with a faculty of 200. The College includes experiment stations at Hays, Garden City, Dodge City, and Ogallah, in addition to the one at Manhattan. A large extension department is doing much to help the agricultural interests of the state. It is one of the largest and best equipped agricultural colleges in the United States. The College is divided into the divisions of agriculture, home economics, engineering, and general science.

The State Normal School, located at Emporia, was organized in 1864 with eighteen students. It now enrolls about three thousand students annually, including a branch at Hays and a manual training branch at Pittsburg.

The state institutions are controlled by separate boards of regents appointed by the governor. In addition to the state schools there are thirty-seven denominational and private colleges and schools in Kansas, all of high rank, with excellent faculties and equipment. There are also thirteen business colleges.

The state amply provides for its deficient children. It maintains a school for the deaf at Olathe, one for the blind at Kansas City, and one for the feeble-minded at Winfield. There is also an Industrial School for Delinquent Girls at Beloit and an Industrial School for Delinquent Boys at Topeka.

Kansas State Agricultural College.

State University of Kansas.

All the leading religious denominations have a large membership in Kansas. The total church membership for 1906 (the last religious census) was 458,190. There is a growing tendency towards closer coöperation among all the denominations, to prevent the building of too many churches in the villages and smaller cities. Each of the leading denominations maintains one or more colleges, and some of them maintain hospitals.

Religion

The denominations having fifteen thousand or more are given in the following table:—

Methodist	121,208
Catholic	93,195
Baptist	46,299
Christian	43,572
Presbyterian	40,765
Lutheran	28,642
United Brethren	15,998
Congregational	15,247

Kansas has never placed any religious or denominational qualification upon any of the state offices or members of the state boards. The law provides that the Bible may be read, without comment, in the public schools.

Industries

Kansas is popularly known as the "Garden of the West." It is preëminently an agricultural state. Of the 52,531,200 acres of land surface in Kansas 43,385,000 acres, or 82 per cent, are in farms. The total wealth in the form of farm property in 1910 was $2,039,389,910, divided as follows: Land and buildings, $1,737,556,172; implements and machinery, $48,310,161; live stock and poultry, $253,523,577. The average size of a Kansas farm in 1910 was 244 acres. In 1900 it was 240 acres. The average value of a farm, including its equipment, was $11,467. The average value of land per acre was $35.45. In some of the eastern counties the

Farming, Farm statistics

Kansas State Agricultural College.

State Normal School, Emporia, Kansas.

average value is over $125 per acre. The total number of farms in 1910 was 177,841. Of this number 112,443, or 63.2 per cent, were farmed by the owners, and 65,398, or 36.8 per cent, were farmed by tenants. In 1880, 83.7 per cent of Kansas farms were farmed by the owners, and 16.3 per cent by tenants. There has been a gradual increase in the per cent of tenant farmers. This is a bad thing for agriculture in Kansas.

	Acres	Bushels	Value
Corn	8,109,061	154,651,703	$80,750,803
Wheat . . .	5,973,785	77,577,115	74,493,535
Hay and forage	3,957,745	5,936,997 (tons)	32,033,954
Oats	933,309	22,923,641	9,720,106
Potatoes . . .	79,025	5,647,049	3,471,488
Kafir and milo .	388,495	5,115,415	3,046,799

Farm crops

The leading crops of the state in order of their importance as judged by their value for the year 1910, are as follows: —

Main building Western State Normal School, Hays, Kansas.

Field of red kafir.

In both acreage and value corn is the leading crop. Wheat has an acreage about three fourths that of corn and a value nearly as great. These two crops combined represent about 90 per cent of the acreage of all cereals. The average yield of corn per acre varies greatly from the eastern to the western part of the state. Those counties lying east of Smith, Osborne, Rus-

Model corn field.

Harvesting hay crop.

sell, Barton, Stafford, Pratt, and Barber counties have an average yield per acre of 20 or more bushels. The counties west of those counties have an average of from 20 to 5 bushels per acre. Corn is grown in every county, but more generally in the eastern and central parts of the state. Wheat also is grown in every county, but more generally in the central and western parts. Some of the heaviest wheat-producing counties are Barton, Pawnee, Stafford, Ellis, Rush, and Pratt, all of which lie west of the central part of the state. The average yield per acre of wheat in 1910 was 13 bushels, and the average yield of corn per acre for the same year was 19.1 bushels.

Beet sugar factory, Garden City, Kansas.

As shown in the table, alfalfa and other hay crops yielded nearly 6,000,000 tons in 1910, valued at more than $32,000,000. Of the many hay and forage crops, alfalfa ranks first in value, and prairie hay first in acreage. Kafir, milo, and other

sorghums are extensively raised for feed in central and western Kansas. Oats, potatoes, millet, rye, broom corn, barley, and sweet potatoes are important crops.

Sugar beets are extensively grown along the Arkansas River valley, where irrigation is easily carried on. Garden City is the center for the sugar-beet industry in Kansas.

Administration Building — State Manual Training Normal School, Pittsburg, Kansas.

Kansas has some of the largest apple orchards in the country. Peaches, pears, cherries, plums, and small fruits are raised in all parts of the state.

Truck gardening is an important industry near the larger cities.

The total value of all fruits for 1909 was $3,187,961.

Live stock and poultry

Kansas is peculiarly adapted to raising cattle and hogs and to dairying. The total value of the domestic animals, including poultry and bees, for the year 1910 was $253,523,577, divided as follows: —

Horses,	$112,758,108
Cattle,	80,557,443
Mules,	26,768,453
Hogs,	24,706,885
Poultry,	7,377,469
Sheep,	1,209,931
Bees,	218,612
Other animals,	26,676

The following table shows the number of the more important farm animals in Kansas in 1910: —

Cattle,	3,079,403
Hogs,	3,000,157
Horses,	1,147,056
Sheep,	272,476
Mules,	213,369
Poultry, number of fowls,	15,736,038
Colonies of bees,	73,738

A pure bred Holstein cow.

A world's champion pure bred Angus, raised in Kansas.

number of colonies of bees decreased about 15,000, with a decrease in value to the amount of $60,000.

The increase in the number and value of dairy cows has brought about a great increase in the number of silos constructed each year.

Kansas being in the Great Plains region, most of its area is prairie, but there is considerable timber in the state. Nearly all the cities have a great variety of shade trees, and the large majority of farm homes are surrounded by shade trees. There were, in 1909, 435,591 acres of wild timber in Kansas. Most of the

Forestry

During the last ten years there has been an increase in the number and value of horses, the total value increasing more than $69,000,000, while there has been a decrease in the value of beef cattle to the amount of more than $37,000,000. There has been an increase of about 60,000 in the number of dairy cows and a great increase in value.

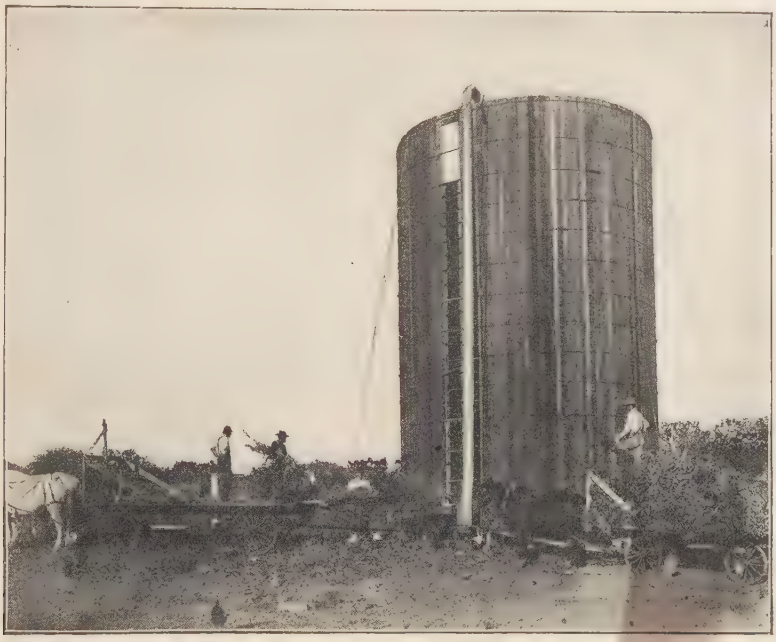
The value of mules has increased nearly $20,000,000; of hogs, has increased nearly $8,000,000; and sheep, $376,000, during the last decade. The number of fowls on Kansas farms increased over 25 per cent, with an increase in value of more than $3,000,000. The

Modern dairy barn

timber is along the rivers and creeks in the eastern half of the state. Locust, cottonwood, catalpa, and other varieties are cultivated in all parts of the state. The following table shows the number of acres of the main cultivated trees: —

Walnut	6,950
Locust	20,345
Cottonwood	23,783
Catalpa	17,537
Other varieties	72,108

Kansas has a state forester whose business it is to look after the forest interests of the state.



A modern silo.

Manufactures

While Kansas is preëminently an agricultural state, it is rapidly becoming an important manufacturing state. In 1910 Kansas had 3500 factories, with 55,000 employees who received $32,000,000 in wages. These factories are worth $160,000,000; they spent $260,000,000 for material, and the total finished products sold for $326,000,000. The

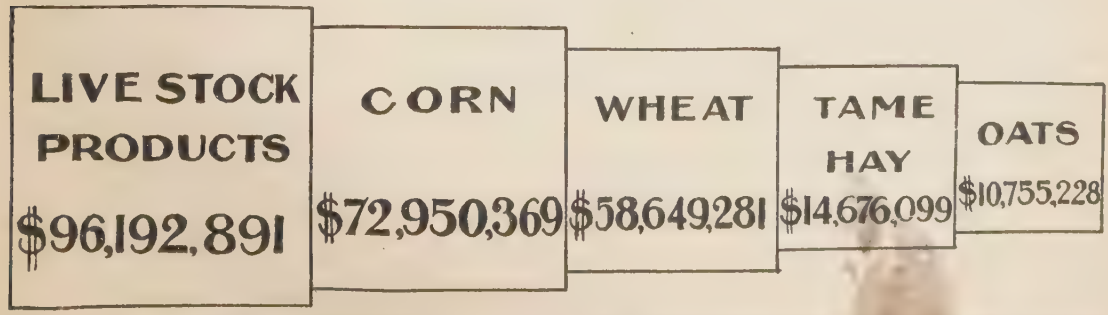


Diagram showing relative values of five leading farm products. Figures are average for years 1907, 1908, 1909, 1910, 1911.

following table gives the number of factories, number of employees, and value of finished product for all the industries whose finished product sold for more than one million dollars in 1910: —

	Number of Factories	Number of Employees	Value of Finished Product
Slaughtering and meat packing	35	12,500	$166,000,000
Flour and grist mills	501	4,000	68,500,000
Car and shop construction	23	8,500	11,250,000
Smelting and refining zinc	12	2,000	11,000,000
Printing and publishing	798	5,000	7,100,000
Butter, cheese, and condensed milk	60	600	6,100,000
Foundry and machine shops	137	3,000	5,900,000
Cement	12	2,500	4,750,000
Bakeries	435	2,000	3,500,000
Lumber and timber products	73	1,200	3,250,000
Brick and tile	55	2,000	2,500,000
Glass	23	1,600	2,100,000
Ice	86	1,000	1,500,000
Leather goods	74	500	1,450,000
Salt	10	550	1,150,000
Marble and stone work	82	500	1,000,000

In addition to these industries, other important industries are: Agricultural implements, soap and candles, brooms, artificial stone, canning and preserving, carriages and wagons, clothing, cooperage, copper, tin and sheet-iron products, furniture and refrigerators, mattresses and bed springs, illuminating gas, paint and varnishes, paper and wood pulp, fire clay products, surgical appliances, sugar, tobacco and snuff, and many other industries.

There are 140 steam laundries with 1600 employees, receiving about $650,000 in wages annually.

Kansas City, Kansas, is one of the largest meat-packing cities in the world. Other important manufacturing cities are Topeka, Wichita, Leavenworth, Hutchinson, Atchison, Salina, Pittsburg, Coffeyville, Parsons, Lawrence, Independence, Fort Scott, and many others.

Mining

The mineral resources of the state consist chiefly of coal, zinc, lead, salt, gypsum, building stone of great variety and beauty, clays for the manufacture of vitrified brick, tile, etc., oil, and gas. The annual value of the mineral products of the state is about $30,000,000.

In twenty of the counties of eastern Kansas bituminous or soft coal is found. The most productive counties are Crawford, Cherokee, Leavenworth, and Linn. The average yearly production of coal is about 7,000,000 tons, worth at the mines $10,000,000. Petroleum and natural gas are found in large quantities in the southeastern part of the state, and as far west as Ellsworth County. The annual output of crude petroleum is about 1,200,000 barrels, worth $500,000. Oil refineries are located at Humboldt, Neodesha, Cherryvale, Peru, and Independence. Gas is taken by pipe lines to Topeka, Kansas City, and many other cities outside of the gas belt. The annual value of gas in the state is about $8,000,000.

One of the largest areas of salt in the United States is found underlying the middle part of the state. The veins are 400 to 1000 feet below the surface, and these veins are often 300 feet thick. The annual production amounts to about 2,500,000 barrels worth $1,000,000. The supply in the state is almost unlimited. Hutchinson, Kanopolis, Ellsworth, Lyons, Sterling, and Anthony are the leading salt-producing centers. Zinc and lead are extensively mined in the southeastern corner of the state. Galena and Baxter Springs are the centers

of lead and zinc mining. Many large smelters have been built in that section of the state. These smelters produce more metallic zinc than all other smelters in the United States. The annual value of the output of zinc in the state is about $1,125,000. Gypsum is found in large quantities in an irregular belt across the middle part of the state from Marshall County to Barber County.

Mills for manufacturing gypsum into plasters, stucco, and plaster of Paris are located at Blue Rapids, Hope, Longford, and Medicine Lodge. The annual value of gypsum is about $400,000.

Large amounts of clay, which is made into vitrified brick, tile, and pottery, are found in many parts of Kansas. The annual value of clay products is about $2,700,000. There are about $1,000,000 worth of building stone quarried in the state annually.

The following table shows the quantity and value of the mineral resources of the state for 1910: —

	Quantity	Value
Coal[1] (tons)	4,921,451	$7,914,709
Natural gas		7,755,367
Portland cement (bbls.)	5,655,808	5,359,408
Clay products		2,661,527
Zinc (tons)	10,220	1,103,760
Salt (bbls.)	2,811,448	947,369
Building stones		794,430
Petroleum (bbls.)	1,128,668	444,763
Gypsum		370,695
Sand and gravel (tons)	776,638	165,659
Lead (tons)	1,308	115,104
All others		671,400
Total		$28,304,191

[1] On account of a strike only about two thirds of the average annual production was mined.

There are, in 1912, [illegible] State Banks in Kansas, with resources amounting to $131,330,846.66. In addition to these there are 210 National Banks with resources in about the same proportion. The state has a bank guarantee law of which many State Banks have taken advantage. The state has a bank commissioner appointed by the governor, with a sufficient force of inspectors to inspect every bank.

Banks

Kansas ranks fourth among the states in regard to the number of miles of railroad within the state. According to the 1910 report there are 8898 miles of single track, and including all the side tracks, 11,272 miles. There are four great trunk lines across the state from east to west. These are the Atchison, Topeka and Santa Fe; the Chicago, Rock Island and Pacific; the Missouri Pacific; and the Union Pacific. These four roads with their branches reach the most important Kansas towns and afford them shipping and traveling connections with all points east and west. The Santa Fe follows the general route of the old "Sante Fe trail" which was used before the establishment of railroads, and by which all the commerce and travel from the east to the west crossed Kansas. These four lines have branches running north and south. Several other important railroads connect

Railroads

The largest salt plant in the world, Hutchinson, Kansas.

Kansas with the Gulf and other southern points. The Report of the Railroad Commissioners for 1910 gives the total number of railroad employees in Kansas as 58,715 and the total salaries received by them $38,490,430.

The following table shows the number of miles of track each railroad has in the state: —

Atchison, Topeka & Santa Fe	3,528.35
Chicago, Burlington & Quincy	282.66
Chicago, Rock Island & Pacific	1,347.76
Kansas Southwestern	64.74
Kansas City Southern	77.87
Kansas City, Mexico & Orient	85.15
Leavenworth & Topeka	40.12
Missouri, Kansas & Texas	582.94
Missouri Pacific	2,710.91
St. Joseph & Grand Island	180.94
St. Louis & San Francisco	920.07
Union Pacific	1,450.68

Street and interurban lines

All of the leading cities of Kansas are amply provided with street railway systems. In the more thickly populated portions of the state interurban lines join many of the smaller towns and country districts with the near-by cities. Lines run out from Kansas City, Independence, Wichita, and Manhattan, and others are in process of construction.

Cities of Kansas

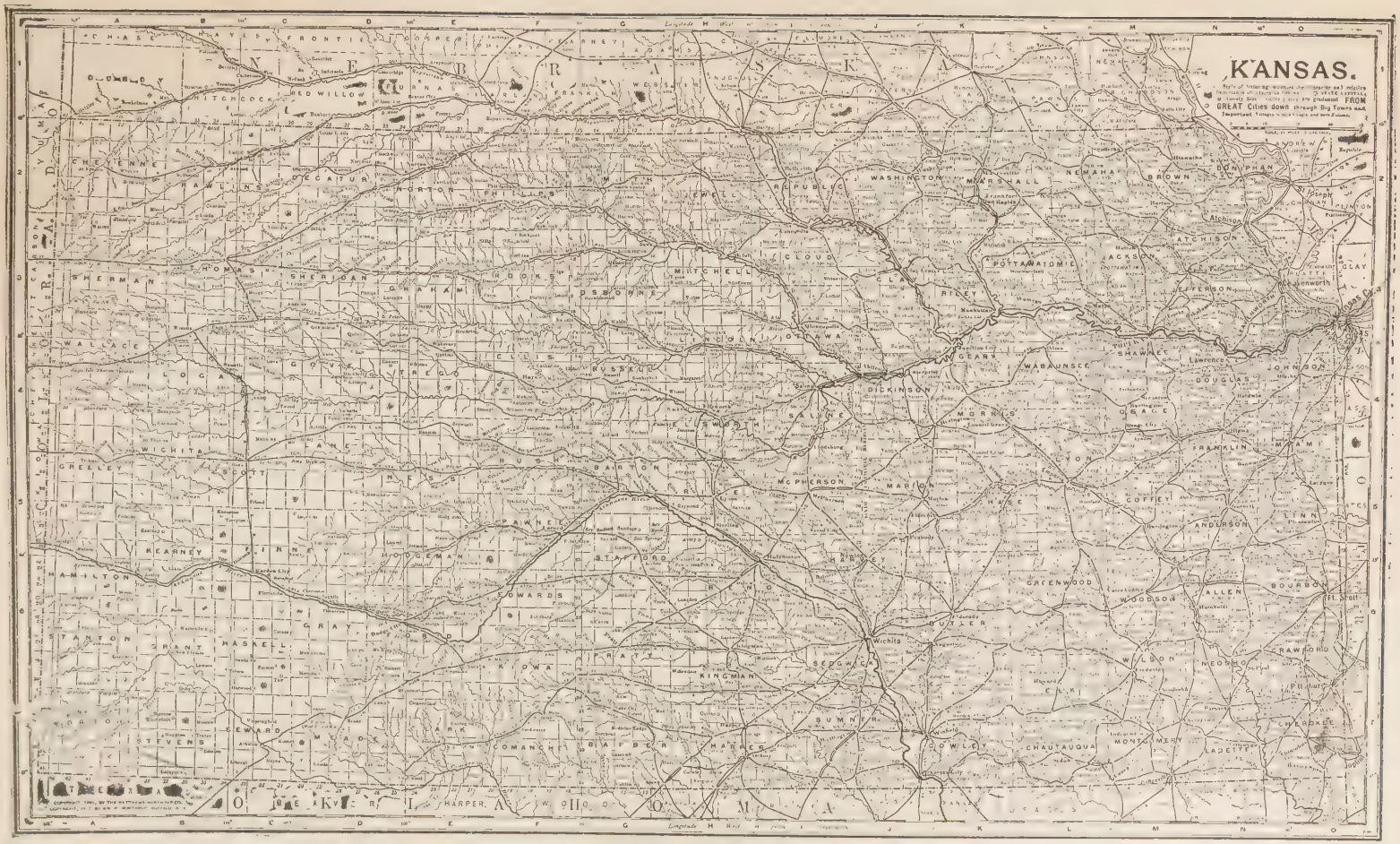
The cities of Kansas are divided into three classes. A city of the first class must have at least 15,000 inhabitants; a city of the second class, at least 2000 inhabitants; and a city of the third class, at least 250 inhabitants.

A short description of each city of more than 5000 inhabitants is given in the following pages. They are given in order of their size. The population of all Kansas cities of the first and second class, as ascertained by the census of 1910, is given on page 26 in this book.

Kansas City, Kansas, is the largest city in the state and is the county seat of Wyandotte County. It is situated on both sides of and near the mouth of the Kansas River. Only the state line divides it from Kansas City, Missouri. Its situation makes it a great railroad center, which in turn makes it a great grain, flour, and live-stock market. Its greatest industry is meat packing, one of its packing houses being the largest in the world. In addition to meat packing, it has various other manufacturing industries, including soap factories, foundries, machine shops, and flour mills. These various trade and manufacturing enterprises make Kansas City one of the most important commercial cities of Kansas. The State School for the Blind and the Kansas City University are located here.

Wichita comes next to Kansas City in size. It is the county seat of Sedgwick County and is situated on the Arkansas River. It is a fast-growing city with a large wholesale trade with southern Kansas and Oklahoma. It has important packing house and manufacturing interests and is an important railroad center. Friends' University and Fairmount College are both located at Wichita.

Topeka is the capital of the state and county seat of Shawnee County. The Kansas River flows through the town and divides it into North and South Topeka. The State House, one of the most beautiful and imposing buildings in the Middle West, together with handsome residences, parks, and the attractive grounds and buildings of Washburn


KANSAS.
FROM GREAT Cities down through Big Towns and Important Villages
NEBRASKA
CHASE
HAYES
FRONTIER
GOSPER
PHELPS
KEARNEY
ADAMS
CLAY
FILLMORE
JOHNSON
NEMAHA
RICHARDSON
DUNDY
HITCHCOCK
RED WILLOW
FURNAS
HARLAN
FRANKLIN
WEBSTER
NUCKOLLS
JEFFERSON
CHEYENNE
RAWLINS
DECATUR
NORTON
PHILLIPS
SMITH
JEWELL
REPUBLIC
WASHINGTON
MARSHALL
NEMAHA
BROWN
DONIPHAN
ANDREW
Atchison
ATCHISON
SHERMAN
THOMAS
SHERIDAN
GRAHAM
ROOKS
OSBORNE
MITCHELL
CLOUD
CLAY
RILEY
POTTAWATOMIE
JACKSON
JEFFERSON
Leavenworth
Kansas City
WALLACE
LOGAN
GOVE
TREGO
ELLIS
RUSSELL
LINCOLN
OTTAWA
GEARY
WABAUNSEE
SHAWNEE
Lawrence
DOUGLAS
JOHNSON
DICKINSON
SALINE
MORRIS
OSAGE
WICHITA
GREELEY
SCOTT
LANE
NESS
RUSH
BARTON
RICE
McPHERSON
MARION
LYON
FRANKLIN
MIAMI
HASE
COFFEY
ANDERSON
LINN
KEARNEY
FINNEY
HODGEMAN
PAWNEE
STAFFORD
RENO
HARVEY
GREENWOOD
WOODSON
ALLEN
BOURBON
Ft. Scott
HAMILTON
EDWARDS
BUTLER
Wichita
STANTON
GRANT
HASKELL
GRAY
FORD
KIOWA
PRATT
KINGMAN
SEDGWICK
WILSON
NEOSHO
CRAWFORD
Pittsburg
ELK
SUMNER
COWLEY
CHAUTAUQUA
MONTGOMERY
LABETTE
CHEROKEE
STEVENS
SEWARD
MEADE
LARK
COMANCHE
BARBER
HARPER
HARPER
OKLAHOMA
Longitude West
Longitude West

Kansas City stock yards.

College, combine to make Topeka one of the most attractive cities in the state. The Santa Fe Railroad has extensive shops and offices at Topeka. Topeka is an important railroad center and has large manufacturing enterprises. The State Reform School and one of the State Asylums for the Insane are located here. Topeka also has an Episcopalian school, College of the Sisters of Bethany.

Leavenworth, county seat of Leavenworth County, is a large city on the Missouri River in the northeastern part of the state. It has coal mines, flour mills, bridgeworks, foundries, and various other industries. Its location and railroad facilities enable it to carry on a large wholesale trade. Fort Leavenworth and a large United States Military Prison are two miles north of the city. The State Penitentiary is located at Lansing, four miles from Leavenworth, and a National Soldiers' Home is somewhat nearer the city.

Atchison is on the Missouri River and is the county seat of Atchison County. It is another important railroad center and manufacturing city and has a large wholesale trade. A large iron foundry, together with coal mines, add to the importance of the city. The State Soldiers' Orphans' Home is in Atchison, as

are two colleges, Midland and St. Benedict's.

Hutchinson, the largest city west of Wichita, is the county seat of Reno County. It is in the center of the salt-mining region and has many salt works. The supply of salt is said to be unlimited — about four thousand barrels being shipped daily. Hutchinson also has extensive flour mills. It has abundant railroad facilities. The State Reformatory is located near the city.

Pittsburg is the leading city of Crawford County. It is in the heart of the coal-mining district and has many large smelters. The Manual Training branch of the State Normal is here.

Coffeyville is in Montgomery County, near the south boundary of the state. It has had a remarkable growth, due to its abundance of natural gas for manufactures and other purposes. There are glass factories, tile and brick plants, flour mills, a foundry, a paper mill, a zinc smelter, and an oil refinery.

Parsons, in Labette County, is a prominent railroad center and is a market for grain and stock. It has large railroad shops. The State Hospital for Epileptics is here.

Lawrence, on the Kansas River, is the county seat of Douglas County. It is one of the historic cities of the state. Its name has become synonymous with the State University, which is located here. Haskell, a Government Indian School, is also near Lawrence. The river power is utilized in flour and other mills.

Independence, county seat of Montgomery County, has grown rapidly since the natural gas fields have given a great impulse to manufacturing. Glass works, brick plants, foundries, machine shops, flour mills, paper mills, and an asphalt and rubber factory all combine to make Independence a very important town of the state.

Building in Topeka. It is used for a department store and for offices.

Fort Scott, county seat of Bourbon County, has many manufactures and is surrounded by rich coal fields and fine stone quarries. It is a railroad center and a distributing point for southern Kansas and Missouri.

Salina, the county seat of Saline County, is one of the most important towns in the wheat belt, and consequently

has large grain elevators and flour mills. It is a railroad junction, which gives it an opportunity to do wholesale business. The Kansas Wesleyan University and St. John's Military Academy are located at Salina.

Chanute, in Neosho County, is in the valley of the Neosho River. It is in the gas and oil belt as well as in a good farming region. It has numerous manufactures, including cement, brick, glass, and gas fixtures.

Emporia lies between the Cottonwood and Neosho rivers and is the county seat of Lyons County. The water power has given rise to several mills and factories. The surrounding farm country adds to the commercial interests of the city. Emporia has many beautiful homes and is a well-kept and attractive place. The State Normal brings about 3000 students to the city every year. The College of Emporia, a Presbyterian school, is also near the city.

Iola, county seat of Allen County, is another city which has grown rapidly since the gas and oil fields have been opened up. It has a zinc smelting industry and a large cement plant in addition to other manufacturing and agricultural interests.

Newton is the county seat of Harvey County and is an important railroad and agricultural center. It has flour mills, railroad shops, and a factory for agricultural implements. Bethel College, the leading Mennonite college, is situated at Newton.

Ottawa is the county seat of Franklin County. In a beautiful grove near the city, the first Kansas Chautauqua Assembly was held. The Assembly still flourishes, and noted lecturers and teachers are heard every year. Ottawa University, an important Baptist institution, is located here. Ottawa has railroad shops, large nurseries, and some manufactures.

Arkansas City is beautifully situated on the Arkansas River near the Oklahoma line. Its location makes it an important distributing point for southern Kansas and Oklahoma. The city is supplied with natural gas and has a number of important industries.

Wellington, county seat of Sumner County, is in the best wheat district of the state. Consequently it has a large flouring industry as well as great agricultural interests. It has also numerous stone quarries and machine shops.

Winfield, county seat of Cowley County, is one of the important cities of southern Kansas. It has extensive stone quarries and large flour mills. An important Chautauqua Assembly is held here each summer. Southwestern College and St. John's Lutheran College are both located here. The State School for the Feeble-minded is also at this place.

Galena is located in the extreme southeastern part of the state in Cherokee County. It is in the center of the zinc and lead mining district and consequently has large smelters. It also has coal mines.

Rosedale is near the mouth of the Kansas River in Wyandotte County. It has packing plants and mills. The Medical School of the State University is located here.

Manhattan is a growing city with many miles of paved streets, the county seat of Riley County. The State Agri-

cultural College, which is located here, adds much to the city. There are valuable stone quarries near the city, some belonging to the state. The college buildings are all built of this native stone. Manhattan also has important agricultural and manufacturing interests.

Junction City is the county seat of Geary County. It has flour mills and is an agricultural center. Fort Riley, an important military post, is located east of the city.

Kansas, being primarily an agricultural state, does not have many large cities. Most of the larger cities are in the eastern part of the state, where there are more packing, manufacturing, and mining industries. Western Kansas has many thriving and progressive cities which are agricultural and shipping centers. Following brief mention is made of some of the more important of the smaller cities of Kansas: —

Abilene, county seat of Dickinson County, is an important shipping point for agricultural products and has flour and lumber mills. It is noted for its pure water from the sand springs.

Baldwin, a prosperous city in Douglas County, is the seat of Baker University, an important Methodist institution.

Beloit, county seat of Mitchell County, has good water power, which it makes use of in flour mills. It also has elevators and quarries and is where the Girls' Industrial School of the state is located.

Cherryvale, in Montgomery County, has oil and natural gas, which enable it to run zinc smelters, a broom factory, and brick plants. It also has trade in farm and dairy products.

Concordia, county seat of Cloud County, in addition to being a shipping point for agricultural products, has large flour mills.

Clay Center, county seat of Clay County, in addition to shipping grain and live stock, has mills, elevators, and shops.

Fredonia, county seat of Wilson County, has oil and gas, cement, brick, tile, glass, and linseed oil factories, in addition to its trade in live stock and produce.

Great Bend, county seat of Barton County, is an important town of western Kansas. It is a shipping point and has mills, quarries, and elevators.

Dodge City, county seat of Ford County, is in the center of the irrigation district and has an Agricultural College Experiment Station.

Hays, county seat of Ellis County, also has an Experiment Station as well as a branch of the State Normal.

Garden City, county seat of Finney County, is one of the most progressive western Kansas towns. It is the center of the beet-sugar industry and has a million dollar beet-sugar factory. It is in the irrigation district and has important agricultural interests.

Herington, in Dickinson County, is a railroad junction with shops and agricultural interests.

Holton, county seat of Jackson County, is an agricultural and shipping center and is the place at which Campbell College, a United Brethren School, is located.

Horton, in Brown County, has extensive Rock Island railroad shops.

Hiawatha, county seat of Brown County, is in a rich agricultural district, which makes it an important city.

Larned, county seat of Pawnee

County, is in the center of the wheat belt. The State Sanitarium for Tubercular Patients is located here.

Lindsborg, in McPherson County, is the seat of Bethany College, a Swedish institution, which is noted the world over for its yearly production of "The Messiah."

McPherson, county seat of McPherson County, in addition to being an agricultural center, has manufacturing plants for carriages and machinery. McPherson College is located here.

Olathe, county seat of Johnson County, has the State School for the Deaf.

Osawatomie, in Miami County, has oil and natural gas as well as farming interests. One of the State Asylums for the Insane is here.

Paola, county seat of Miami County, has natural gas, coal, and oil. It manufactures tile, brick, steam radiators, and has a foundry.

St. Marys, in Pottawatomie County, has an important Catholic school, St. Marys College.

Weir City, in Cherokee County, is an important mining town. The new School of Mines in connection with the State University is located here.

Pratt, county seat of Pratt County, has the State Fish Hatcheries.

QUESTIONS

1. What is the origin of the name Kansas?
2. What was the Kansas-Nebraska Bill?
3. State briefly the struggle between the slave and free settlers.
4. When did Kansas become a state?
5. Give the latitude and longitude.
6. Name the states that border Kansas.
7. State the greatest length and breadth.
8. What is the total area in square miles? in acres?
9. Describe briefly the surface.
10. Name and give elevation of highest point; of lowest point.
11. Name the chief rivers and locate them.
12. Describe the soil in northeastern part of state; in southeastern part; in northwestern part; in southwestern part.
13. What is the amount of rainfall in eastern part of state? in western part?
14. Describe the different methods of irrigation.
15. How many acres are under irrigation?
16. Describe briefly the climate of Kansas.
17. What is the present population?
18. Find out the increase in population for each decade since 1860.
19. How many counties?
20. Which county has the greatest population? Which the smallest?
21. What is the average number of persons to the square mile?
22. What county has the greatest density of population? Number of persons to square mile?
23. What county has the lowest density? Number of persons to square mile?
24. What per cent of people of the state live in the country? in the cities?
25. Name the three departments of government.
26. Name the executive officers. How elected?
27. Name the different state boards. State the function of each.
28. How does the commissioner of labor get his office?
29. How many members in each house of the legislative department? For how long is each elected?
30. When and how often does the legislature meet?
31. Of what does the judicial department consist?
32. For how long are the judges elected?
33. How many members has Kansas in the National House of Representatives? Length of term? Name the member from your district.
34. How many United States senators has Kansas? Length of term? Name them.
35. What are the county offices?
36. Describe the commission form of government for cities.

37. Who is required to attend school in Kansas?

38. How is the money raised for school purposes?

39 Who is the principal school officer in the state? in the county?

40. Of whom is the State Board of Education composed?

41. How many school districts in Kansas?

42. How many members on each district school board? Name the members in your district.

43. How many towns and cities with one or more years of high school work?

44. What is the tendency in education today?

45. Do you have agriculture, domestic science, and manual training in your school?

46. What is the state doing to promote industrial education?

47. Describe and give location of the three schools for higher learning in the state.

48. How many other schools and colleges in the state?

49. Name and locate the schools for deficient and delinquent children.

50. Name the principal industries of Kansas. What is the chief industry?

51. What per cent of the land surface is devoted to farms?

52. What is the total value of the farm property? How is this divided?

53. What is the average size of a farm in the state? the average value of land per acre?

54. What is the number of farms? What per cent is farmed by owners? by tenants? How does this compare with conditions in 1880?

55. Name the principal farm crops of Kansas in order of their value.

56. What is the principal crop in your community?

57. What section of the state is best adapted to raising corn? wheat?

58. What was the average yield of corn per acre in 1910? of wheat?

59. Where is the center of the sugar-beet industry?

60. What is the total annual value of all the fruits in Kansas?

61. Name the principal fruits grown.

62. Name in order of value the farm animals raised.

63. Name them in order of number

64. What are the main forest trees grown in Kansas?

65. Name the trees grown in your community.

66. Name in order of their value the principal manufactures of Kansas.

67. Name the leading manufacturing cities of the state.

68. What are the principal minerals?

69. What is the total annual value of mineral products?

70. How many banks in Kansas? How are the depositors protected?

71. Name the principal railroads. What is the total mileage?

72. How many classes of cities? Population for each class?

73. Name and locate all cities of more than five thousand inhabitants.

74. Over what railroad or railroads would you travel in going from your nearest town to the state capitol, to Kansas City, Wichita, Lawrence, Emporia, Manhattan, Pittsburg, Garden City, Scott City, Sharon Springs, Oberlin Liberal, Hugoton

75. Name the principal cities on the Missouri River; the Kansas River; the Arkansas River.

76. What counties in the state have no railroads?

77. In which direction do the rivers of the state flow? Why?

78. Bound the county in which you live.

79. Name the county seat and other cities in your county.

80. Name the counties in your congressional district.

81. Why are most of the larger cities in the eastern part of the state?

82. What are the chief crops of the eastern third of the state? of the central third? of the western third?

83. Why is Wichita a rapidly growing city? Kansas City?

84. What railroads pass through your county?

85. Through what county seat towns would you pass going from your nearest town to the state capitol?

86. What city of the first class is the nearest to your home?

87. What divides Kansas City, Kansas, from Kansas City, Missouri?

88. What section of the state produces the most coal? oil? gas? salt? zinc? gypsum? building stone?

89. For what are the following cities noted: Kansas City, Topeka, Wichita, Garden City, Hutchinson, Galena, Kanopolis, Lawrence, Emporia, Larned, Manhattan, Leavenworth, Baldwin, Osawatomie?

90. What is the largest county in the state?

91. Name and locate ten colleges other than the state institutions.

92. Name the five counties which have the largest yield of wheat; of corn.

93. What is the total yield of each of these crops in your county?

94. What are the leading religious denominations of the state based upon membership?

COUNTIES OF KANSAS AND THEIR POPULATION AS GIVEN BY THE 1910 CENSUS

Allen	27,640	Greeley	1335	Osborne	12,827
Anderson	13,829	Greenwood	16,060	Ottawa	11,811
Atchison	28,107	Hamilton	3360	Pawnee	8859
Barber	9916	Harper	14,748	Phillips	14,150
Barton	17,876	Harvey	19,200	Pottawatomie	17,522
Bourbon	21,007	Haskell	993	Pratt	11,156
Brown	21,314	Hodgeman	2930	Rawlins	6380
Butler	23,059	Jackson	16,861	Reno	37,853
Chase	7527	Jefferson	15,826	Republic	17,447
Chautauqua	11,429	Jewell	18,148	Rice	15,106
Cherokee	38,162	Johnson	18,288	Riley	15,783
Cheyenne	4248	Kearny	3206	Rooks	11,282
Clark	4093	Kingman	18,386	Rush	7826
Clay	15,251	Kiowa	6174	Russell	10,800
Cloud	18,388	Labette	31,423	Saline	20,338
Coffey	15,205	Lane	2603	Scott	3047
Comanche	3281	Leavenworth	41,207	Sedgwick	73,095
Cowley	31,790	Lincoln	10,142	Seward	4091
Crawford	51,178	Linn	14,735	Shawnee	61,874
Decatur	8976	Logan	4240	Sheridan	5651
Dickinson	24,361	Lyon	24,927	Sherman	4549
Doniphan	14,[illegible]22	McPherson	21,521	Smith	15,365
Douglas	24,794	Marion	22,415	Stafford	12,510
Edwards	7033	Marshall	23,880	Stanton	1034
Elk	10,128	Meade	5055	Stevens	2453
Ellis	12,170	Miami	20,030	Sumner	30,654
Ellsworth	10,444	Mitchell	14,089	Thomas	5455
Finney	6908	Montgomery	49,474	Trego	5398
Ford	11,393	Morris	12,397	Wabaunsee	12,721
Franklin	20,844	Morton	1333	Wallace	2759
Geary	12,681	Nemaha	19,072	Washington	20,229
Gove	6044	Neosho	23,[illegible]	Wichita	2006
Graham	8700	Ness	3883	Wilson	19,810
Grant	1087	Norton	11,614	Woodson	9450
Gray	3121	Osage	19,905	Wyandotte	100,068

CITIES OF KANSAS HAVING OVER 2000 INHABITANTS ACCORDING TO 1910 CENSUS

Abilene	4118	Garden City	3171	Neodesha	2872
Anthony	2669	Garnett	2384	Newton	7862
Arkansas City	7508	Girard	2446	Olathe	3272
Atchison	16,429	Great Bend	4622	Osage	2432
Belleville	2224	Hays	1961	Osawatomie	4046
Beloit	3082	Herington	3273	Oswego	2317
Burlington	2180	Hiawatha	2974	Ottawa	7650
Caldwell	2205	Holton	2842	Paola	3207
Caney	3597	Horton	3600	Parsons	12,463
Chanute	9272	Humboldt	2548	Pittsburg	14,755
Cherryvale	4304	Hutchinson	16,364	Pratt	3302
Clay Center	3438	Independence	10,480	Rosedale	5960
Coffeyville	12,687	Iola	9032	St. Marys	1397
Columbus	3064	Junction City	5589	Salina	9688
Concordia	4415	Kansas City	82,331	Scammon	2333
Council Grove	2545	Kingman	2570	Sterling	2133
Dodge City	3214	Laharpe	2080	Topeka	43,684
Eldorado	3129	Larned	2911	Weir City	2289
Ellsworth	2041	Lawrence	12,374	Wellington	7034
Emporia	9058	Leavenworth	19,363	Wichita	52,450
Eureka	2333	Lindsborg	1939	Winfield	6700
Fort Scott	10,463	Lyons	2071	Yates Center	2024
Fredonia	3040	McPherson	3546		
Frontenac	3296	Manhattan	5722		
Galena	6096	Marysville	2260		

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On this 7 day of May 1917 we had a flag drill

Wayne Sand
Afferle
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